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DIRECT AND GENERAL SUPPORT MAINTENANCE MANUAL

TRUCK, LIFT, FORK, EMD, SOLID RUBBER TIRED WHEELS, 2000 LB CAPACITY, 144 IN LIFT

ARMY MODEL MHE-219

ALLIS CHALMERS MODEL FE20-24EE

FSN 3930-151-4432

HEADQUARTERS, DEPARTMENT OF THE ARMY

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DEPARTMENT OF ARMY
WASHINGTON, D. C., *2 December 1971*

DIRECT AND GENERAL SUPPORT MAINTENANCE MANUAL

TRUCK, LIFT, FORK, EMD, SOLID RUBBER TIRED WHEELS, 2000 LBS. CAPACITY, 144 IN. LIFT

ALLIS CHALMERS MODEL FE20-24EE, FSN 3930-151-4432

ARMY MODEL MHE-219

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CHAPTER 1

INTRODUCTION

Section I. GENERAL

1-1. Scope

This manual contains the information necessary for the maintenance of the Truck, Lift, Fork, Electric, Solid Rubber Tired Wheels, 2000 pound capacity by Direct Support and General Support Maintenance personnel as allocated by the Maintenance Allocation Chart. The manual provides information on the maintenance of the equipment which is beyond the scope of the tools, equipment, personnel, or supplies normally available to Operator and Organizational Maintenance.

1-2. Forms and Records

DA forms and records used for equipment maintenance will be only those prescribed in TM 38-750.

1-3. Reporting of Errors

Report of errors, omissions, and recommendations for improvement of this publication by the individual user is encouraged. Reports should be submitted on DA Form 2028 (Recommended Changes to Publications) and forwarded direct to Commanding General, U.S. Army Mobility Equipment Command, ATTN: AMSME-MPP, 4300 Goodfellow Boulevard, St. Louis, Mo. 63120.

Section II. DESCRIPTION AND DATA

1-4. Description

A general description of the Truck, Fork Lift and information pertaining to the identification plates is contained in TM 10-3930-628-12. A more detailed description of specific components and assemblies is contained in the applicable sections of this manual. Detailed descriptions of the components of the truck are provided in the applicable maintenance paragraphs of this manual.

1-5. Identification and Tabulated Data

a. General. This paragraph contains all of the maintenance data pertinent to direct and general support maintenance personnel.

b. Identification. The lift truck has two identification plates.

(1) *Army data plate.* Located on the instrument panel. Specifies the nomenclature, manufacturer, model and serial numbers and capacity.

(2) *Shipping plate.* Located on front of frame. Specifies shipping dimensions, weight and cubage.

c. Drive Motor Classification and Rating.

Make	Allis Chalmers
Model	725B4
Horsepower	4.6 HP
Current Draw	95 Amps
Voltage	36 Volts
Speed	880 RPM
Winding Type	Series Wound
Cooling	Fan Cooled
Insulation	Class F
Rotation	Clockwise

d. Pump Motor Classification and Rating.

Make	Allis Chalmers
Model	450CS3
Horsepower	11.5 HP
Current Draw	294 Amps
Voltage	36 Volts
Speed	2015 RPM
Winding Type	Series Wound
Cooling	Fan Cooled
Insulation	Class F
Rotation	Counterclockwise

e. Steering Unit Classification and Rating.

Make	Ross Gear
Model	253AA008
Type	Manual

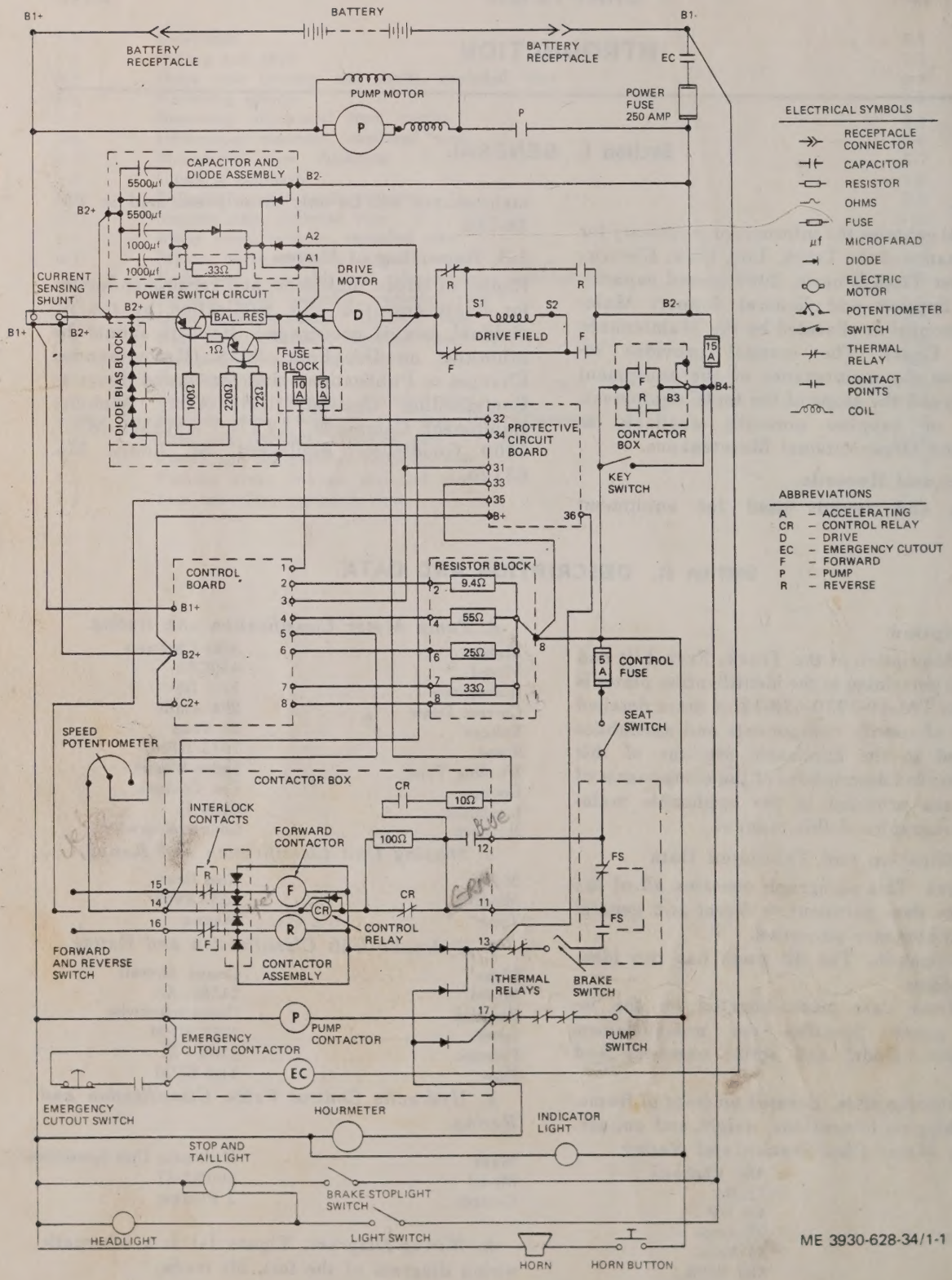
f. Hydraulic Unit Classification and Rating.

Make	Cessna Aircraft
Model	24386LAA
Rotation	Counterclockwise
Speed	2015 RPM
Pressure	1500 PSI
Flow	11.8 GPM

g. Hydraulic Control Valve Classification and Rating.

Make	Hydraulic Unit Specialties
Model	5000-2-31
Control	2 Plunger

h. Wiring Diagram. Figure 1-1 is a schematic wiring diagram of the fork lift truck.



ELECTRICAL SYMBOLS

- RECEPTACLE CONNECTOR
- CAPACITOR
- RESISTOR
- OHMS
- FUSE
- µf MICROFARAD
- DIODE
- ELECTRIC MOTOR
- POTENTIOMETER
- SWITCH
- THERMAL RELAY
- CONTACT POINTS
- COIL

ABBREVIATIONS

A	– ACCELERATING
CR	– CONTROL RELAY
D	– DRIVE
EC	– EMERGENCY CUTOUT
F	– FORWARD
P	– PUMP
R	– REVERSE

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Figure 1-1. Schematic wiring diagram, for lift truck.

CHAPTER 2

DIRECT AND GENERAL SUPPORT MAINTENANCE INSTRUCTIONS

Section I. REPAIR PARTS, SPECIAL TOOLS, AND EQUIPMENT

2-1. Tools and Equipment

There are no tools and equipment issued with or authorized for the Army Model MHE-219 Fork Lift Truck.

2-2. Special Tools and Equipment

There are no special tools and equipment issued with or authorized for the Army Model MHE-219 Fork Lift Truck.

2-3. Maintenance Repair Parts

Repair parts and equipment are listed and illustrated in the repair parts and special tools list covering direct and general support maintenance (TM 10-3930-628-34P) for this equipment.

Section II. TROUBLESHOOTING

2-4. General

This section provides information useful in diagnosing and correcting unsatisfactory operation or failure of the Army Model MHE-219 Fork Lift Truck and its components. Malfunctions which may occur are listed in table 2-1. Each malfunction stated is followed by a list of probable causes for the trouble. The corrective action recommended is described opposite the probable cause.

Warning: **Do not use or mix hydrometers used in checking nickel / iron and lead acid batteries.**

Table 2-1. Troubleshooting

Malfunction	Probable Cause	Corrective Action
1. Forward and reverse contactors do not pull in when accelerator is depressed.	*a.* Low battery.	*a.* Check specific gravity.
	b. Faulty battery connector.	*b.* Inspect the connector for burned or corroded contacts. Repair or replace as necessary (TM 10-3930-628-12).
	c. Mechanical interference or foreign material preventing operation.	*c.* Examine contactors visually for obstructions. Remove obstruction (para 4-22).
	d. Improperly adjusted or defective accelerator control.	*d.* Adjust speed potentiometer (para 4-21).
	e. Short or defect in contactor coil or circuit.	*e.* Perform mechanical and dynamic switch tests (para 4-24). Replace shorted or defective contactor coil (para 4-22).
	f. Shorted or defective emergency cutout coil in contactor.	*f.* Perform tests on emergency cutout contactor (para 4-24). Replace defective contact coil (para 4-22).
2. Contactors pull in when the accelerator is depressed, truck runs at full speed only.	*a.* Improperly adjusted or defective speed potentiometer, foot switches or linkage.	*a.* Adjust speed potentiometer (para 4-21).
	b. Faulty power switch.	*b.* Perform power switch assembly resistance tests. Repair or replace as necessary (para 4-18).
	c. Faulty control board assembly.	*c.* Perform voltage tests. Repair or replace as necessary (para 4-21).
3. Contactors pull in when accelerator is depressed. truck does not move.	*a.* Faulty cabling or wiring.	*a.* Inspect all power cabling and wiring and replace as necessary.
	b. Improperly adjusted or defective speed potentiometer, foot switches or linkage.	*b.* Perform speed potentiometer adjustment (para 4-21).

Table 2-1. Troubleshooting—Continued

Malfunction	Probable Cause	Corrective Action
3. Contactors pull in when accelerator is depressed, truck does not move—Cont'd.	*c.* Faulty control board assembly.	*c.* Perform voltage tests (para 4-21).
	d. Faulty power switch assembly.	*d.* Perform power switch assembly resistance test. Replace faulty switch (para 4-18).
4. Uneven accleration or poor inching characteristics.	*a.* Improperly adjusted or defective speed potentiometer, foot switches or linkage.	*a.* Perform speed potentiometer adjustment (para 4-21).
	b. Inching potentiometer out of adjustment.	*b.* Perform inching control adjustment (para 4-21).
5. Inadequate power for climbing grades or pushing loads.	*a.* Low battery (shorted cells).	*a.* Check specific gravity.
	b. Loose power cabling.	*b.* Inspect all connections. Tighten as required.
	c. Faulty battery connector.	*c.* Inspect connector for burned or corroded contacts. Repair or replace.
	d. Improperly adjusted or defective speed potentiometer, foot switches or linkage.	*d.* Perform speed potentiometer adjustment (para 4-21).
	e. Improper current limit adjustment.	*e.* Perform undervoltage and current limit test (para 4-21).
	f. Improper undervoltage adjustment.	*f.* Perform undervoltage and current limit test (para 4-21).
6. Inoperative at high speed.	*a.* Low battery (shorted cells).	*a.* Check specific gravity (TM 10-3930-628-12).
	b. Faulty shunt contactor.	*b.* Check contactor for obvious damage. Repair or replace (para 4-24).
	c. Faulty cabling or wiring.	*c.* Inspect all cabling and wiring. Replace as required.
	d. Faulty electronic power shift shunt control.	*d.* Perform mechanical and dynamic switching tests (para 4-21).
7. Excessive contactor arcing.	*a.* Improperly adjusted or defective speed potentiometer, foot switches or linkage.	*a.* Perform speed potentiometer adjustment (para 4-21). Replace defective parts.
	b. Improperly adjusted inching control.	*b.* Adjusting inching control (para 4-21).
8. Truck moves when directional contactor closes (accelerator control otherwise normal).	*a.* Improperly adjusted or defective speed potentiometer, foot switches or linkage.	*a.* Perform speed potentiometer adjustment. Replace defective parts.
9. Failure to move.	*a.* Broken axle pinion shaft.	*a.* Replace (para 5-4).
	b. Teeth broken on axle pinion shaft or bull gear.	*b.* Replace (para 5-4).
	c. Broken teeth on differential ring gear, pinion, or internal gears.	*c.* Replace both ring gear and pinion; they are a matched set (para 5-4).
10. Axle noise on drive or coast.	*a.* Excessive wear on ring gear or pinion.	*a.* Adjust if possible, or replace (para 5-4).
	b. Worn pinion gears or side gears in differential case.	*b.* Replace worn gears (para 5-4).
11. Continuous axle noise.	*a.* Excessive wear in gear train.	*a.* Replace worn parts (para 5-4).
12. Excessive backlash in drive unit.	*a.* Worn splines on axle pinion shaft.	*a.* Replace axle pinion shaft (para 5-4).
	b. Worn pinion, ring gear or differential case pinion.	*b.* Replace (para 5-4).
13. Brake pedal goes to toe board.	External leak in system or leak past master cylinder piston cup.	Check system and master cylinder for leak, and repair (para 6-5).
14. Both brakes drag.	*a.* Foreign material in brake system and / or gumming of cylinder and components.	*a.* Clean out system, replace cups in cylinders (para 6-4) and refill with approved brake fluid (LO 10-3930-628-12).
	b. Breather port in master cylinder clogged.	*b.* Clean out breather port (para 6-5).
15. One wheel drags.	*a.* Obstructed brake line.	*a.* Remove obstruction or repair line.
	b. Swollen wheel cylinder piston cups, or piston binding.	*b.* Replace defective or damaged parts (para 6-4).

Table 2-1. Troubleshooting—Continued

Malfunction	Probable Cause	Corrective Action
16. Truck pulls to one side.	*a.* Lining charred or drum scored.	*a.* Replace lining. Repair or replace drum (TM 10-3930-628-12).
17. Loose steering.	*a.* Bent or loose linkage and knuckle pins.	*a.* Repair, replace or adjust (TM 10-3930-628-12).
	b. Steering gear bending or out of adjustment.	*b.* Adjust, repair or replace (para 6-24).
	c. Loose steering arm.	*c.* Tighten (para 6-24).
18. Low hydraulic oil pressure.	*a.* Worn pump.	*a.* Inspect and replace (para 3-40).
	b. External leakage.	*b.* Tighten or replace fittings, hoses or seals (TM 10-3930-628-12).
	c. Control valve not properly adjusted or defective.	*c.* Adjust or replace control valve as necessary (para 3-46).
19. Unable to lift or tilt load.	*a.* Load too heavy.	*a.* Check capacity on Serial No. Plate (TM 10-3930-628-12).
	b. Damaged or worn pump.	*b.* Test and repair or replace as required (para 3-40).
	c. Broken lift chain.	*c.* Repair or replace (TM 10-3930-628-12).
	d. Damaged lift cylinders.	*d.* Check for bending or plunger malfunction (para 3-19 & 3-25). Replace defective parts.
	e. Control valve inoperative.	*e.* Test and repair or replace as required (para 3-46).
20. Lift and tilt too slow.	*a.* Internal leakage at pump.	*a.* Disassemble and inspect for leakage or damaged parts. Repair as required (para 3-40).
	b. Excessive leakage at cylinder packing.	*b.* Repair or replace packing (paras 3-6 & 3-19).
	c. Air leaks in system.	*c.* Tighten connections.
	d. Misalignment.	*d.* Check masts, carriage or tilt linkage for binding (para 3-13).
21. Load creeps, tilting or lowering.	*a.* Internal leakage in cylinders.	*a.* Repair or replace packing (para 3-6, 3-19 & 3-25).
	b. Oil leak at packing glands.	*b.* Repair or replace packings (para 3-6, 3-19 & 3-25).
	c. Leak in control valve.	*c.* Check for worn or damaged plungers (para 3-46).
	d. Leaks in oil lines.	*d.* Tighten all connections or replace damaged lines.
22. Noisy pump.	*a.* Pump head loose.	*a.* Tighten.
	b. Worn or broken parts.	*b.* Replace (para 3-40).
23. Oil overheating.	*a.* Internal oil leakage.	*a.* Repair or replace pump (para 3-40).
	b. Pump too tight after overhaul.	*b.* Remove and repair (para 3-38).
	c. Restricted lines.	*c.* Check and repair.

Section III. REMOVAL AND INSTALLATION OF MAJOR COMPONENTS

2-5. Mast Assembly

a. Removal.

(1) Unlock and remove the forks from the carriage, with the mast in its fully retracted position.

(2) Raise the truck and block it 24 inches from the floor to remove the carriage.

(3) Remove screws (11 and 13, fig. 3-8), spacer (9) and lock washers (10) from the carriage supports.

(4) Remove the connector (67, fig. 3-3) and elbow (66) from the flow regulator body (64). Remove regulator body (64) from cylinder.

(5) Attach a hoist to the backrest frame (1, fig. 3-8) and disconnect the chains from the carriage assembly.

(6) Remove the backrest and carriage assembly through the bottom of the inner mast (31, fig. 3-3). Lower truck to floor if desired.

(7) Disconnect the tilt cylinders from the outer mast by removing cotter pins (52), washers (53) and shafts (54).

(8) Using a hoist, raise the mast assemblies enough to remove the weight on the mast pivot pin (56, fig. 3-3). Remove the screws (58), lock washers (59) and pivot pins (56).

(9) Using a hoist, lift the mast assemblies from the truck and place them on suitable supports with the cylinder cluster facing up.

b. Installation.

Note. When using a hoist, always make sure that it has sufficient lifting capacity for the job being performed.

(1) Wrap a chain around the mast and carriage assemblies and with the hoist raised, align the lift cylinder connections with the high pressure hose.

Note. Use a drift pin to align the pivot pin holes on the mast and the truck.

(2) Install the mast pivot pins with the capscrews and lock washers. Connect all lines and hoses that were disconnected during removal.

(3) Install the tilt cylinder pins and lock in place with cotter pins.

(4) Adjust the tilt angle of the mast as outlined in TM 10-3930-628-12.

(5) Install and adjust the lift chains as directed in TM 10-3930-628-12.

(6) Remove the hoisting chain from around the mast. Check all hydraulic connections for leaks.

2-6. Drive Motor

Warning: **Before any service is performed on the vehicle, make certain that the battery connector has been disconnected.**

a. Removal. To remove the drive motor without removing the drive axle, proceed as follows:

(1) Remove the floor and toe plates, and drip pan.

(2) Disconnect the brake line at the interconnecting tee and remove the line from the master cylinder. Remove the brake line bracket attached to the drive motor flange.

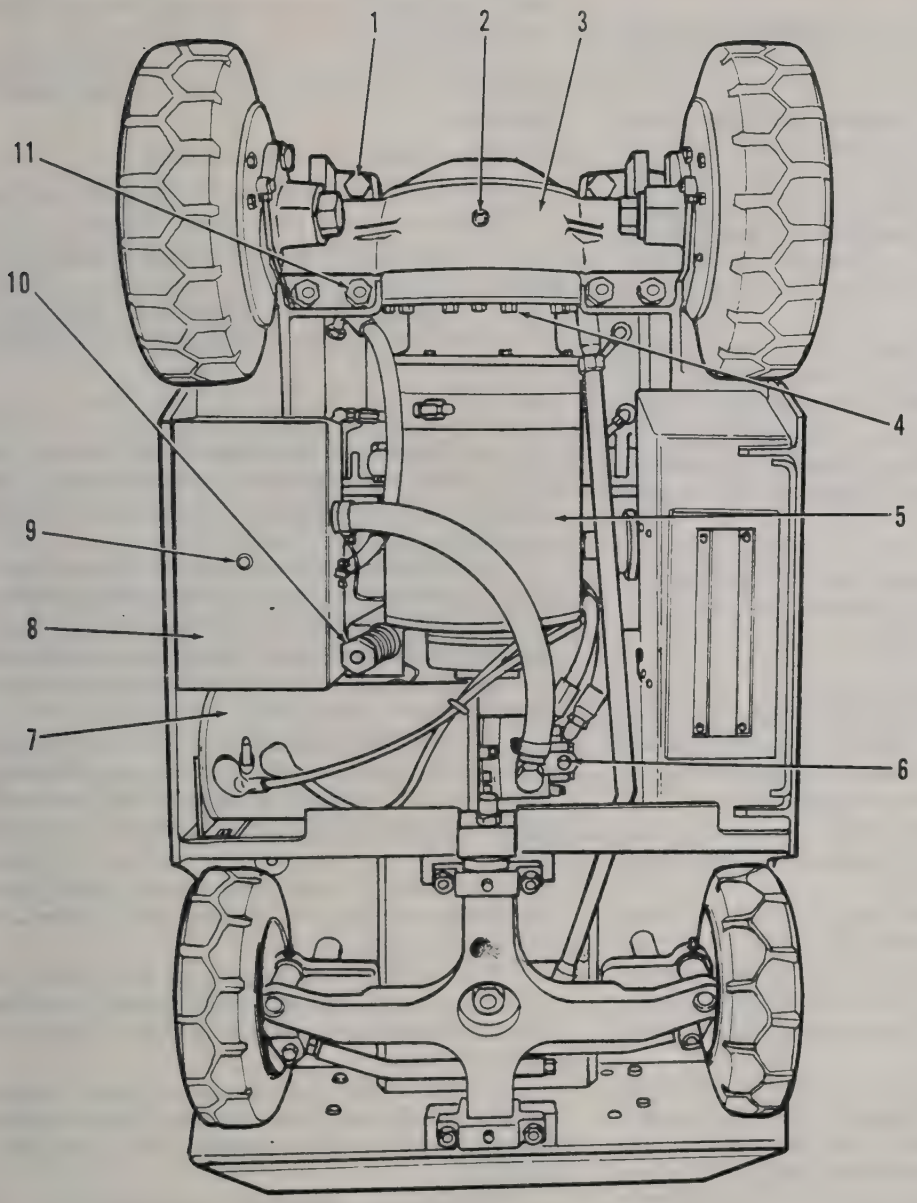
(3) Disconnect drive motor cables and tag cable ends to assure proper installation. Remove thermal relay from motor.

(4) Remove the yoke pin from the parking brake actuating lever and remove the screws securing the seat bracket assembly to the drive motor housing. Remove brake linkage and lower spring (10, fig. 2-1) from motor bracket.

(5) Place a transmission jack or other suitable lifting device under the drive motor. Raise the jack enough to support the drive motor.

(6) Remove the differential housing drain plug (2, fig. 2-1) and drain the differential housing oil.

(7) Remove the wheels and axle shafts.



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1. Screw
2. Drain plug
3. Differential carrier
4. Nut
5. Drive motor
6. Hydraulic pump
7. Hydraulic pump motor
8. Hydraulic reservoir
9. Drain plug
10. Lower spring
11. Nut

Figure 2-1. Underside of truck.

(8) Remove the nuts (4) securing the drive motor (5) to the axle.

(9) Check all lines, hoses, cables, wires and linkages to make certain that none will be damaged during removal.

Caution: **Make certain that the shims between the motor and the axle are not damaged when removing the drive motor. When installing the drive motor to the axles, the shims must be replaced in the same order and position as when the motor is removed.**

(10) Carefully separate the carrier from the axle.

(11) Attach a hoist securely to the front of the truck frame. Raise the truck carefully making sure that all hoses, lines and cables stay clear of the motor. Raise the truck enough to allow the drive motor, carrier, and parking brake to be removed from under the truck. Remove gasket between carrier and axle.

b. Installation. Install the drive motor by reversing the removal procedure. Be sure that the gasket between the carrier and the axle is replaced.

2-7. Hydraulic Pump Motor

a. Removal.

Warning: **Before any service is to be performed on the vehicle, make certain the battery connector has been disconnected.**

(1) Remove the floor and toe plates.

(2) Remove the drip pan.

Note. If the hydraulic oil is to be reused, make certain it is stored in a clean container.

(3) Remove the drain plug (9, fig. 2-1) from the hydraulic oil reservoir (8) and drain the hydraulic oil into a container of suitable size.

(4) Tag and disconnect all hydraulic lines to the pump (6). Tag and disconnect all cables to the hydraulic pump motor.

(5) Attach a chain hoist to the mast assembly and raise the vehicle sufficiently until the truck is high enough to facilitate the removal of the hydraulic pump motor. Block the truck in position.

(6) Place a transmission jack or other suitable lifting device under the pump motor. Remove the screws securing the mounting brackets to the truck frame; carefully lower motor and remove it from under the truck.

b. Installation. Install the hydraulic pump motor using the direct reversal of the removal procedure.

2-8. Drive Motor and Drive Axle

a. Removal. To remove the drive motor and drive axle as a unit, proceed as follows:

(1) Remove the mast assembly as outlined in paragraph 2-5.

Caution: **Before proceeding with drive motor and axle removal, disconnect the battery connector.**

(2) Remove the floor and toe plates.

(3) Remove the drip pan.

(4) Disconnect the brake line at the interconnecting tee and remove the line from the master cylinder. Remove the brake line bracket attached to the drive motor flange.

(5) Disconnect the drive motor electric cables and tag cable ends to assure proper reinstallation.

(6) Remove the yoke pin from the seat brake actuating lever and remove the screws securing the seat brake bracket assembly to the drive motor housing.

(7) Place a transmission jack, or suitable lifting device, under the drive motor and drive unit. Raise the jack enough to support the assembly. Remove the retaining screws (1, fig. 2-1) and nuts (11, fig. 2-1) securing the drive unit to the frame.

(8) Check all brake lines, hoses, cables, wires and linkage to make certain none will be damaged during removal.

(9) Attach a hoist securely to the front of the truck frame and raise the truck carefully making certain all lines and hoses remain clear of the motor and drive unit.

(10) Raise the truck enough to allow the drive motor and drive unit to be removed from under the truck. Carefully pull the assembly out from under the truck.

b. Installation. Install the motor and drive unit by reversing the removal procedure.

CHAPTER 3

REPAIR OF THE HYDRAULIC LIFT COMPONENTS

Section I. GENERAL

3-1. Description

The hydraulic system is comprised of a hydraulic reservoir, a hydraulic pump, control valve, three section mast assembly, tilt cylinders, and associated hydraulic hoses and hose connections. Refer to figure 3-1.

3-2. Operation

a. Pump Action. The hydraulic pump draws oil from the hydraulic reservoir and supplies oil under pressure to the control valve.

b. Lift Control.

(1) When the lift control handle is pulled back, hydraulic oil is delivered through the control valve to the two outer cylinders on the cylinder cluster (42, fig. 3-3). Oil pressure forces the two outer cylinder rams upward, raising the chains and lifting the carriage up the mast. Continued raising actuates the center cylinder of the cluster and the single lift cylinder.

(2) When the lift control handle is released to neutral, hydraulic oil pressure will hold the carriage stationary.

(3) When the lift control handle is pushed forward, hydraulic oil pressure is released and the carriage and masts are lowered by their own weight.

c. Tilt Control.

(1) When the tilt control handle is pushed forward, hydraulic oil pressure is applied through the control valve to the rear of the tilt cylinders. The cylinder plunger rods move forward and tilt the masts forward. At the same time, hydraulic oil in the front of the tilt cylinders is recirculated through the control valve.

(2) When the tilt control handle is centered, hydraulic oil pressure is equalized in both sides of the tilt cylinders and the masts remain in the desired tilt.

(3) When the tilt control handle is pulled back, hydraulic oil pressure is applied through the control valve to the front of the tilt cylinders. The cylinder plunger rods move backward, resulting in a backward tilt of the masts. At the same time, hydraulic oil in the rear of the tilt cylinders is recirculated through the control valve.

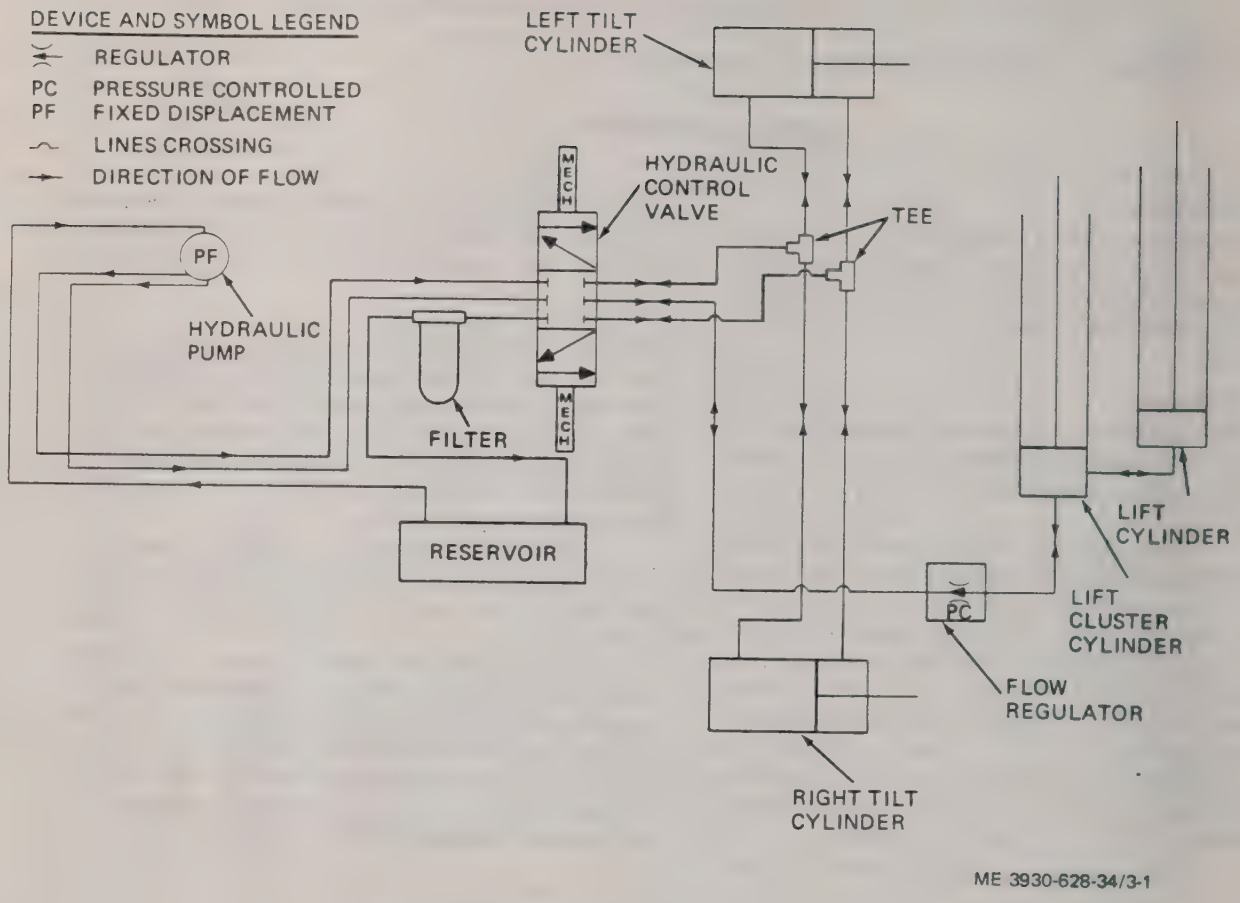


Figure 3-1. Hydraulic lift system, schematic.

Section II. TILT CYLINDER

3-3. Description

The two double acting cylinders serve to tilt the mast assembly. They are located under the toe plate and pivot at the frame and mast brackets. Action of the tilt cylinder is a straight line motion. Any misalignment of the tube assembly (24, fig. 3-2) and the quad ring (13) will cause rapid wear of the internal parts and may break the tube assembly weld.

3-4. Removal

Remove cotter pins (52, fig. 3-3), washers (53) to disconnect cylinder from mast. Disconnect hydraulic lines from cylinder, remove nut (2, fig. 3-2) and shoulder bolt (1) at rear of cylinder and remove cylinder from truck.

3-5. Disassembly

a. Refer to figure 3-2 and disassemble as follows:

b. Secure the tilt cylinder in a bench vise. Be careful not to deform the cylinder tube.

c. Remove the screw (3), lock washers (5), nut (6) and yoke (4). The yoke is threaded onto the tilt cylinder plunger (18).

d. Remove the gland nut (22) and preformed packing (21).

e. Remove the wiper ring (23), quad ring (19) and the back-up ring (20) from inside the gland nut (22).

f. Withdraw the plunger rod (18) from the cylinder tube assembly.

g. Remove the cotter pin (16), the castellated nut (17) and piston assembly from the plunger rod (18).

h. Remove the piston packing (11) from the base of the piston (15).

i. Remove the quad ring (13) and the two back-up rings (12 and 14) from the groove around the outside diameter of the piston (15).

j. Remove the two spacers (9 and 10).

3-6. Cleaning, Inspection and Replacement

a. Clean all metal parts with cleaning solvent (Fed. Spec. P-D-680). Dry parts thoroughly with compressed air.

b. Check the tube bore for scores or nicks.

c. Check the sliding surfaces on piston (15) for scores, nicks or irregularities.

d. Check all back-up rings for cracks, bends, deformation, stripped threads and other damage.

e. Replace all packing, wiper rings and other damaged or worn parts as authorized.

3-7. Assembly

a. Refer to figure 3-2 and assemble as follows:

b. Dip all preformed packings, quad rings, and wiper rings in hydraulic oil before assembly.

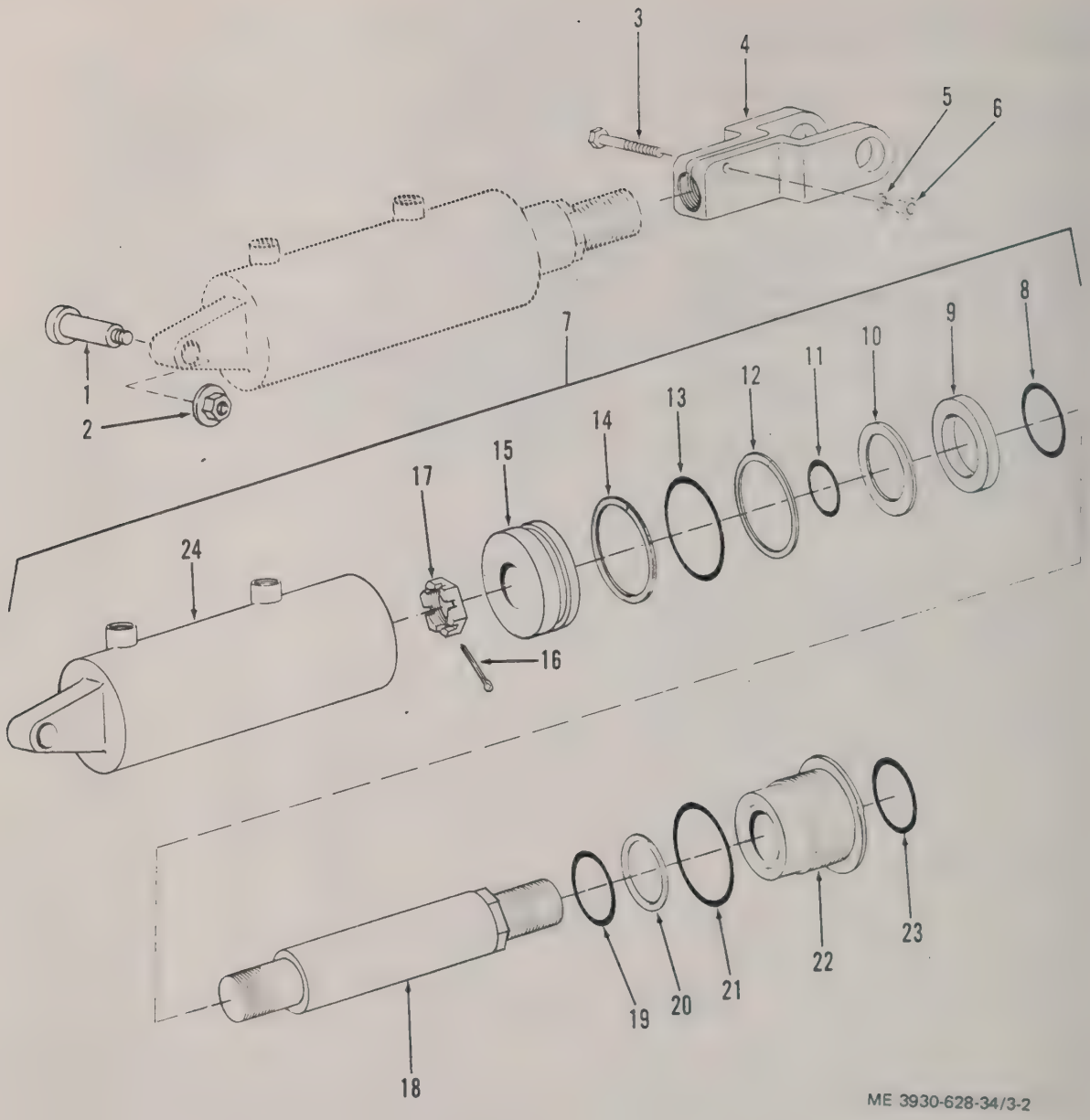
c. Oil piston, plunger rod and gland nut before installation.

Note. When installing packing and back-up rings onto the piston, do not stretch the packing or expand the back-up rings any more than necessary.

d. Install the back-up rings (12 and 14) and the quad ring (13) on the piston (15).

e. Install the packing (8) and the two spacers (9 and 10) on the plunger (18).

f. Install the piston packing (11) in the bore of the piston (15).



1. Bolt, shoulder
2. Nut, flanged
3. Screw
4. Yoke
5. Lock washer
6. Nut
7. Cylinder assembly
8. Preformed packing
9. Spacer
10. Spacer
11. Preformed packing
12. Back-up ring
13. Quad ring
14. Back-up ring
15. Piston
16. Cotter pin
17. Nut
18. Plunger rod
19. Quad ring
20. Back-up ring
21. Preformed packing
22. Gland nut
23. Wiper ring
24. Tube assembly

Figure 3-2. Tilt cylinder and associated parts.

g. Install the piston assembly onto the plunger (18) and secure with the nut (17). Tighten the nut to a torque of 125 foot-pounds and secure in place with cotter pin (16).

h. Install the two rings (19 and 23) and the back-up ring (20) into the bore of the gland nut (22).

i. Place the packing (21) on the outside of the gland nut (22).

j. Install the plunger rod with its assembled parts in the tube assembly (24) and secure in place with the gland nut. Tighten the gland nut securely, then back off approximately ⅛ turn.

k. Screw on yoke (4) and secure in place with the screw (3), lock washer (5), and nut (6).

3-8. Installation and Adjustment

a. Install cylinder on truck and attach rear of cylinder to frame with shoulder bolt (1, fig. 3-2) and nut (2).

b. Attach front end of cylinder to mast with shaft (54, fig. 3-3), washers (53) and cotter pins (52).

c. Refer to TM 10-3930-628-12 to adjust mast tilt angle.

Section III. MAST ASSEMBLY

3-9. Description

a. The mast assembly is a three section mast assembly designed to provide lifts up to 144 inches. Three masts, nested together, comprise the assembly; an outer mast, intermediate mast and an inner mast. Each mast consists of a structural steel frame, with mounting brackets and blocks welded to it to support the cylinders, chains and bearings.

b. The intermediate and inner masts ride on roller bearings, allowing them to telescope up and down. Alignment of the mast channels is accomplished by adjusting the roller bearings.

c. A carriage, designed to mount the lifting forks, is supported by chains leading from the outer cylinders of the cylinder cluster. Action of the chains, cylinders, and mast raise and lower the carriage.

d. Power to raise and lower the masts and carriage is provided by hydraulic oil pressure to a cylinder assembly and cylinder cluster. The cylinder assembly is a single cylinder attached to the inner portion of the intermediate mast with the cylinder ram extending through an opening in the intermediate mast and anchored at the lower part of the outer mast.

e. The cylinder cluster, consisting of three cylinders, is mounted forward of the cylinder assembly in the intermediate mast. The rams of the two outer cylinders mount the two crosshead and chain bearing assemblies, with the chains attached to adjusting anchors in mounting brackets on the cylinders. The chains extend over the bearings and attach at the other end to anchors on the carriage. Chain guards, mounted on the crossheads and cylinders, keep the chains from striking the cylinder plungers and packing. Rams from the outer cylinders lift and lower the carriage along the length of the inner mast by means of the chains. The center cylinder of the cluster has the ram anchored at the bottom of the intermediate mast and the top of the cylinder attached to the inner mast.

f. The bottom of the outer mast has pivot blocks, with bearings, for mounting to the truck. Pivot blocks are also provided on the outer mast to connect the tilt cylinders to the mast.

g. An interlock assembly, spring actuated, is mounted on the right beam of the inner mast. The interlock assembly locks all three mast sections in the lowered position until full free lift is accomplished. When full free lift is reached, the carriage stop screw strikes the interlock assembly to release it, allowing all mast sections to function completely.

3-10. Operation

a. When the lift handle on the control valve is pulled to the rear, hydraulic oil pressure is delivered to the two outer cylinders of the cylinder cluster. Pressure forces the cylinder rams to extend upward, raising the chains and lifting the carriage up the mast. Speed of lift is controlled by motor speed and by valve opening.

b. As the carriage reaches the top of the inner mast the two outer cylinder rams will be extended to their farthest point of travel. With the handle pulled to the rear, the hydraulic oil pressure will then force the center cylinder ram of the cylinder cluster from the cylinder, raising the inner mast and carriage.

c. As the center cylinder ram reaches its farthest extent of travel the inner mast will be fully extended above the other two masts with the carriage at the top. Continued operation will cause the ram of the single cylinder to force downward against the outer mast, raising the intermediate mast. Full extension of the ram will raise the carriage to the highest level.

d. When the lift handle on the control valve is released to neutral, hydraulic oil pressure will hold

the carriage at the required height. To lower the carriage, push the handle forward. The hydraulic oil pressure will be released allowing the carriage and masts to lower to the desired height. A flow regulator holds lowering speed to a maximum of 70-80 fpm. The regulator is installed in the single lift cylinder hose connection at the bottom of the outer mast.

3-11. Removal

Refer to paragraph 2-5 and remove the carriage and mast assembly.

KEY to fig. 3-3:

1. Screw
2. Outer mast
3. Stud
4. Spacer
5. Spacer
6. Bearing
7. Nut
8. Bearing
9. Spacer
10. Spacer
11. Bracket
12. Screw
13. Washer
14. Screw
15. Single lift cylinder
16. Nut
17. Screw
18. Washer
19. Guard
20. Screw
21. Shaft
22. Anchor
23. Chain
24. Spacer
25. Roller bearing
26. Spacer
27. Crosshead
28. Ring
29. Screw
30. Washer
31. Inner mast
32. Pin
33. Interlock
34. Screw
35. Spacer
36. Screw
37. Spring
38. Screw
39. Bearing
40. Spacer
41. Spacer
42. Cylinder cluster
43. Elbow
44. Tube
45. Connector
46. Screw
47. Washer
48. Guard
49. Intermediate mast
50. Washer
51. Nut
52. Cotter pin
53. Washer
54. Shaft
55. Bushing
56. Pivot pin
57. Washer
58. Screw
59. Fitting
60. Fitting
61. Washer
62. Nut
63. Preformed packing
64. Regulator body
65. Flow regulator
66. Elbow

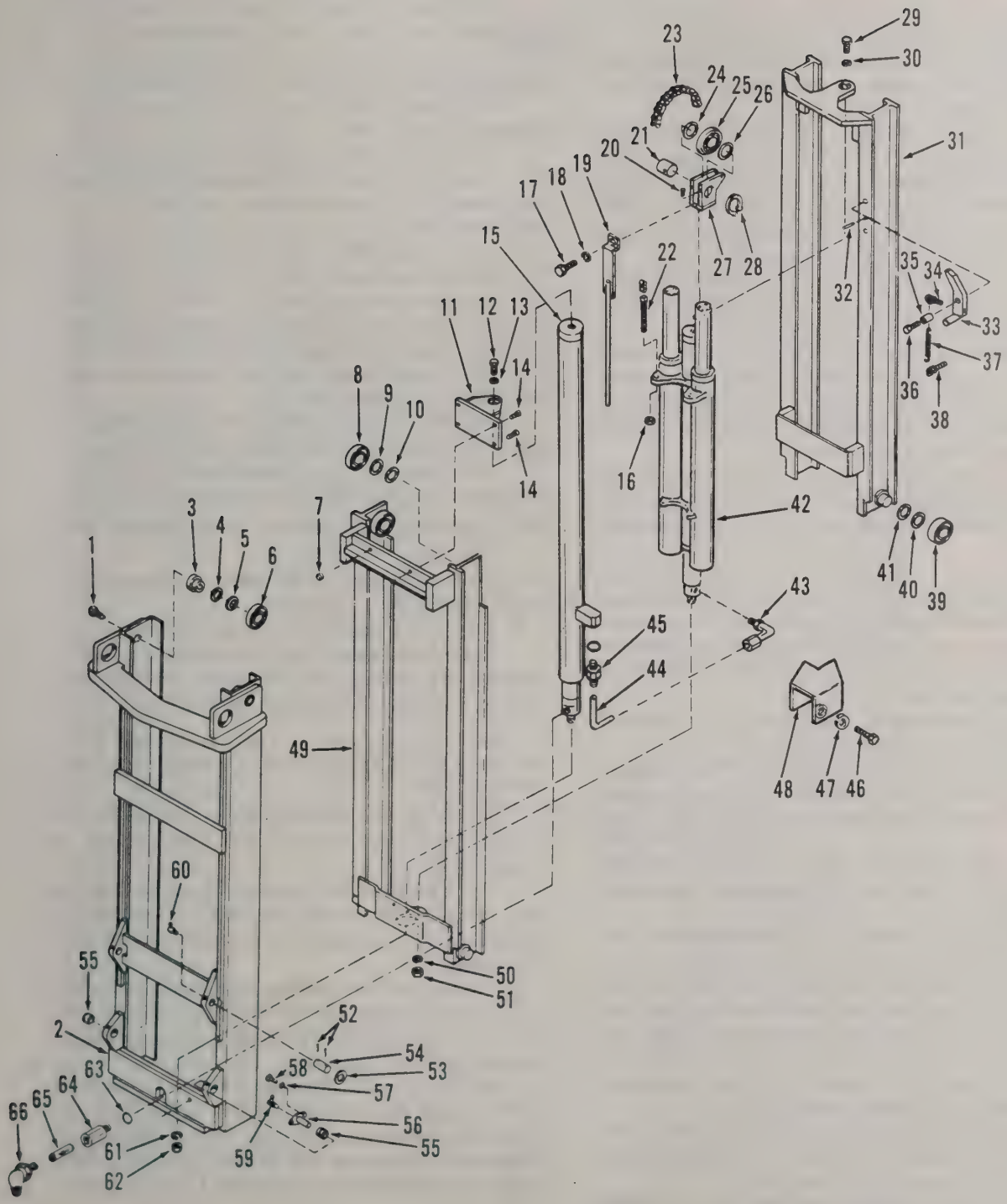


Figure 3-3. Mast assembly.

3-12. Disassembly

a. Refer to figure 3-3 and disassemble as follows:

b. Remove inner mast (31) as follows:

(1) Remove screw (29) and lock washer (30) connecting inner mast to the center cylinder of cylinder cluster (42).

(2) Remove bottom adjustment nuts (16) from chain anchors (22) and remove chains (23) from cylinder cluster (42) and inner mast (31). Match-mark location of nuts (16) on anchors (22).

(3) Remove the interlock spring (37) from screws (34 and 38) and remove the screws.

(4) Remove the screw (36) and spacer (35) from the interlock (33); remove the interlock from inner mast (31). Tap out the pin (32).

Caution: **Do not raise the inner mast beyond the clearance point or the inner mast bearing (39) will contact the upper intermediate mast bearing (8), which may result in damage to the bearings.**

(5) Using a hoist, slowly raise the inner mast (31) until the notch at the bottom of the inner mast channel clears the upper intermediate mast bearing (8).

(6) Check to see that the inner mast bearing (39) will clear the notch in the upper intermediate mast channel. If both bearings (8 and 39) are clear, remove the inner mast (31) from the intermediate mast (49) by carefully moving the hoist in a horizontal direction.

(7) Remove the bearings (39) and the spacers (41 and 40) if they are to be replaced.

c. Remove the intermediate mast (49) as follows:

(1) Remove the capscrew (46), lock washer (47) and guard (48) from the intermediate mast (49).

(2) Disconnect the elbow (43), connector (45) and tube (44) from the cylinder cluster and single lift cylinder.

(3) Remove screw (17), lock washer (18), and chain guard (19) from crosshead (27).

(4) Remove the retaining rings (28) from the shaft (21). Tap out the shaft and remove the bearing (25) and spacers (24 and 26) from the crosshead (27).

(5) Remove the screws (20) and crosshead (27) from the cylinder cluster (42).

(6) Remove the nut (51) and lock washer (50) securing the center cylinder of the cylinder cluster (42) to the intermediate mast (49).

Caution: **Always handle the cylinder cluster in the fully collapsed position to avoid scratching or nicking the ram surface.**

(7) Using a hoist, remove the cylinder cluster (42) from the intermediate mast (49).

(8) Remove screw (12) and lock washer (13) attaching upper part of single lift cylinder (15) to bracket (11), and screws (14) and nuts (7) attaching bracket to the intermediate mast (49).

(9) Remove the bracket (11) from the intermediate mast (49).

(10) Remove the nut (62) and lock washer (61) securing the bottom of the single lift cylinder (15) through the intermediate mast (49) to the outer mast (2).

(11) Remove the single lift cylinder (15) from the intermediate mast (49).

(12) Remove the screws (1), studs (3), shims (4 and 5), and bearings (6) at the top of the outer mast (2). Note the size and quantity of shims used.

(13) Using a hoist, slide the intermediate mast (49) from the outer mast (2).

(14) Remove the bearing (8) and shims (9 and 10), from the intermediate mast, if necessary.

(15) Remove the bearings (55) and lubrication fittings (60) from the outer mast (2).

3-13. Cleaning, Inspection, Replacement and Repair

a. Clean all parts with cleaning compound, solvent (Fed. Spec. P-D-680).

b. Inspect all parts for wear or damage.

c. If the inner race of the bearing is fractured, examine the bearing stud for nicks. Replace the bearing and stud if damaged as follows:

Note. All bearing studs are welded into position except the outer mast bearing stud, which is attached to the outer mast with a screw.

(1) Press the bearings from the studs and remove the shims. Note the size and quantity of shims used.

(2) Remove the filler metal from around the stud using a small, round grinder. Do not make any passes into the mast channel. Remove the stud from the channel.

(3) Prepare the welding surface by removing all foreign material such as rust, scale, grease, etc. Any part that may be damaged by heat should be removed before welding.

(4) Locate, tilt and align the new stud on the mast channel (fig. 3-4). Use section B-B of figure 3-4 for dimensions of the inner mast bearing stud location. Sections A-A and B-B of figure 3-4 apply to the intermediate mast bearing stud locations.

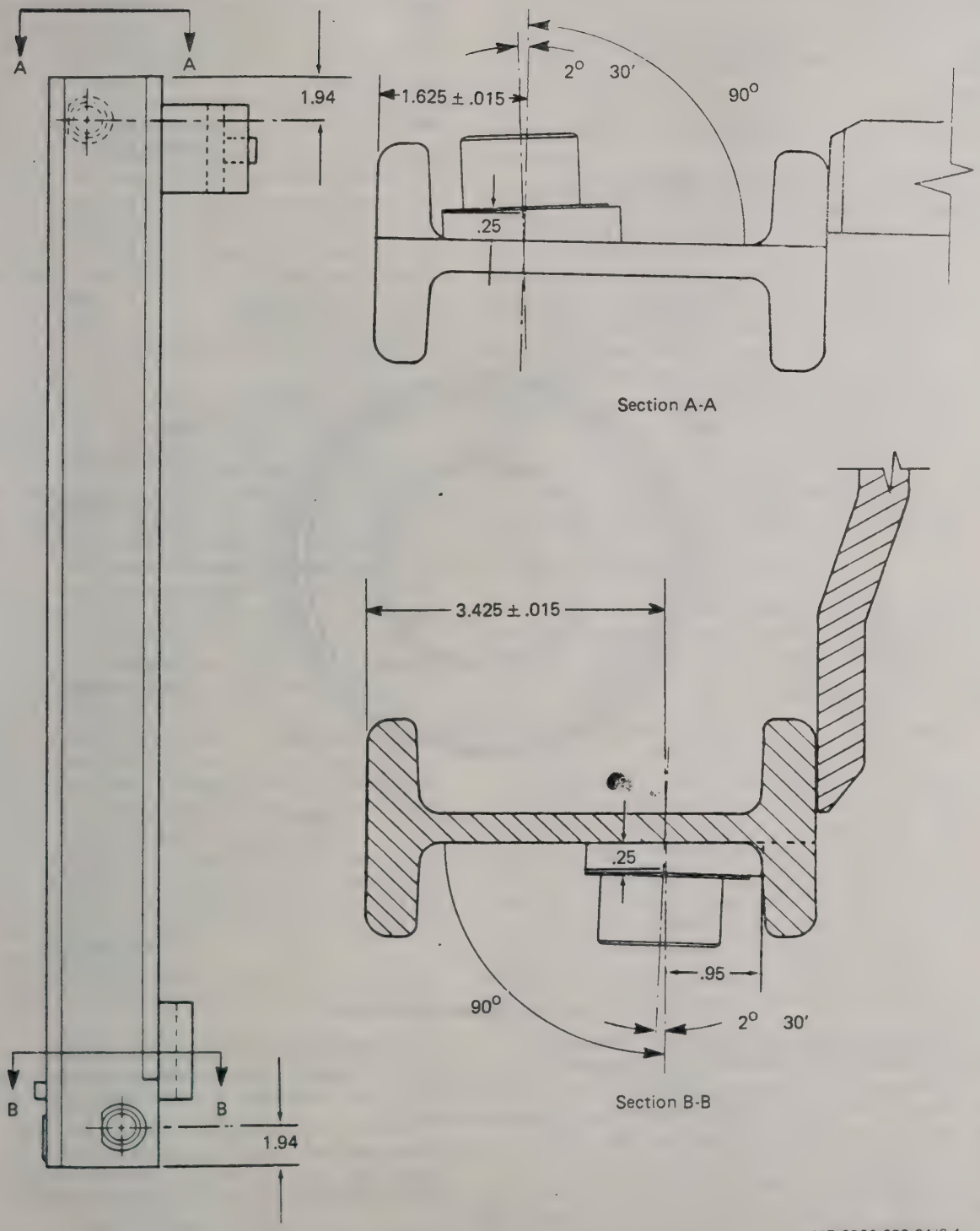


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Figure 3-4. Mast bearing stud locations.

(5) Comply with the following welding specifications using bearing stud welding procedure (fig. 3-5):

Process	Shielded Metal Arc
Equipment	Manual
Settings:	
Current	A. C.
Amps	275 / 325
Volts	31 / 33
Base Metals	(1) AC 1035-D
	(2) AC 41L40-HT (roller stud)
Plate Thickness Range	⅜" - 1"
Electrode:	
Type	Stick
Class	E 7018 (hydrogen free)
Size	⅜"
Flux	Electrode Covering
Weld Type and Size	¼" Fillet
Number of Passes	1
Position	Horizontal
Preheat	400 degrees F
Interpass	250 degrees F
Postheat	None

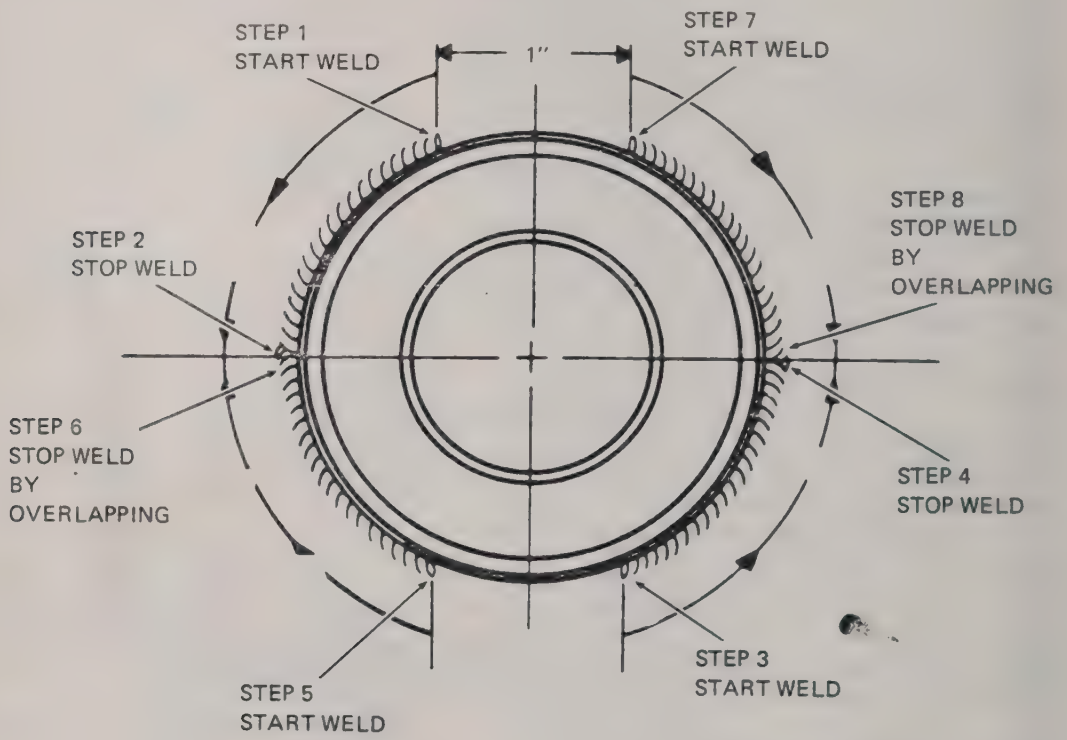


Figure 3-5. Bearing stud welding procedure.

(6) When welding is completed, remove all slag, weld spatter, and excessive weld material.

(7) Remove the defective material with a small, round grinder in 0.010—0.020 of an inch passes and visually inspect for defects after each pass.

d. Inspect the mast channels for misalignment, broken welds, excessive wear, and worn or damaged wear strips.

e. Inspect the pivot and tilt cylinder brackets on the outer mast for wear or damage. Check the pivot bearing.

f. Repair by welding is practical, provided heat distortion is avoided.

g. Replace defective parts as authorized.

h. If the studs or outer mast bearings are replaced, the attaching screws must also be replaced.

3-14. Assembly

Note. Prior to assembly, lubricate all parts per LO 10-3930-628-12.

a. Refer to figure 3-3 and assemble as follows:

b. Install the lubrication fittings (60) and bearings (55) in the outer mast (2).

c. Assemble the intermediate mast (49) as follows:

(1) Install the bearings (8) and the same size and quantity of shims (9 and 10) on the welded intermediate mast studs, if the bearings and shims were removed during disassembly.

(2) Using a hoist, slide the intermediate mast (49) into the outer mast (2).

(3) Using the same size and quantity of shims used when removed, install the studs (3), shims (4 and 5), and bearings (6) at the top of the outer mast. Secure the studs to the mast with screws (1).

(4) Check the clearance between the outer mast bearings (6) and mating intermediate mast channels and intermediate mast lower bearings and mating outer mast channels. The clearance should be no more than 0.015 of an inch.

(5) If the clearance is more than 0.015 of an inch, remove the bearing and install additional shims (4 and 5).

Note. Divide the shims as equally as possible between the bearings. Shims are available in 0.015 and 0.040 inch thicknesses.

(6) When proper shimming is completed, install bearings (6) on the outer mast (2) and tighten screws (1) to a torque of 245 foot-pounds.

(7) Secure bracket (11) to the intermediate mast (49) with screws (14) and nuts (7).

(8) Install the single lift cylinder (15) on the intermediate mast (49) and secure to the top bracket with lockwasher (13) and screw (12).

(9) Install new packing (63), flow regulator body (64), flow regulator (65), elbow (66) and connector (67).

(10) Using a hoist, install the cylinder cluster (42) on the intermediate mast (49).

(11) Secure the center cylinder of the cylinder cluster to the bottom of the intermediate mast with lockwasher (50) and nut (51).

(12) Attach the crossheads (27) to the outer cylinders of the cylinder cluster with screws (20).

(13) Install the bearings (25), spacers (24 and 26), and shafts (21) in the crossheads and secure with retainers (28).

(14) Install the chain guards (19) on the crossheads (27) with lockwashers (18) and screws (17).

(15) Connect the elbow (43), tube (44) and connector (45) from the cylinder cluster to the single lift cylinder.

d. Assemble the inner mast (31) as follows:

(1) Install the bearings (39) and the same size and quantity of shims (40 and 41) on the inner mast welded bearing stud, if the bearings and shims were removed during disassembly.

(2) Using a hoist, install the inner mast (31) on the intermediate mast (49) being careful that the bearings (39) clear the notches.

(3) Lower the inner mast (31) slightly into the intermediate mast (49). Check the clearance between the intermediate mast upper bearings and inner mast channel and inner mast bearings and intermediate mast channel. Clearance should not be more than 0.015 of an inch.

(4) If clearance is more than 0.015 of an inch, install additional shims (40 or 41). See operation *c* (4) note.

(5) When proper shimming is completed, install bearings (39) and slide the inner mast completed into the intermediate mast.

(6) Install the pin (32) into the middle hole on the inner mast and secure the interlock (33) in the upper hole with spacer (35) and screw (36).

(7) Install both screws (34 and 38) and connect the interlock spring to them.

(8) Attach the chains (23) to the cylinder cluster (42) with adjustment nuts (16) and anchors (22), noting match-mark nut locations on screws. Final adjustment of the chains will be made after the carriage is installed.

(9) Secure the cylinder cluster (42) to the top of the inner mast with lock washer (30) and screw (29).

3-15. Installation

a. Using a hoist, install mast assembly on the truck and insert the pivot pins (56, fig. 3-3). Secure with the lock washers (57) and screws (58).

b. Connect the hydraulic line to the flow regulator body.

c. Connect the tilt cylinders to the outer mast (para 3-8).

d. Using a hoist, slide the backrest and carriage assembly up the inner mast and secure to chains with chain anchors. Before releasing the hoist, check to ensure that the chains are secure at the cylinder cluster and running evenly, with no twists, through the crosshead bearings.

e. Remove the hoist from the carriage and install screws (11 and 13, fig. 3-8), spacer (9) and lock washers (10) in carriage roller supports.

f. Remove the blocks and lower the truck to the floor.

g. Install the carriage forks making sure the fork is locked in position.

h. Check for complete lubrication of mast assembly (LO 10-3930-628-12).

i. Check lift for proper operation as follows:

(1) Lower carriage to the lowest point of travel. The bottom of the lower carriage bar should be adjusted from 2¾ to 3¼ inches from the floor. Refer to TM 10-3930-628-12 for adjustment of chains.

(2) Using extreme care, very slowly extend the

mast to full lift checking all moving parts for binding, interference, or excessive looseness or play.

(3) Check the operation of the interlock assembly. The interlock must contact the stop screw on the carriage roller support and disengage smoothly when lifting the carriage.

Section IV. CYLINDER CLUSTER

3-16. Description

The cylinder cluster consists of three cylinder assemblies and is mounted forward of the single cylinder assembly in the intermediate mast. The rams of the two outer cylinder mount the two crosshead and chain bearing assemblies, with the chains attached to the chain anchors in mounting brackets on the cylinders. The outer rams lift and lower the carriage along the length of the inner mast by means of chains. The center cylinder has its ram anchored at the bottom of the intermediate mast and its cylinder attached to the inner mast. Forcing downward, the center ram raises the carriage and inner mast to their fullest extent.

3-17. Removal

To remove the cylinder cluster without removing the inner mast, refer to figure 3-3 and proceed as follows:

Caution: **When disassembling or reassembling the cylinders, use extreme care to avoid damaging the finish of ram surfaces.**

a. Raise the inner mast (31) approximately 24 inches from floor and block in this position.

b. Remove the carriage as follows:

(1) Remove the screws and spacer from the carriage roller supports.

(2) Remove the carriage forks.

(3) Attach a hoist to the carriage, remove the chain anchor pins, and disconnect the chains (23) from carriage.

(4) Lower the carriage out of the bottom of the inner mast.

c. Disconnect the lift chains (23) from the chain anchors (22) on the top of the cylinder cluster and then remove chains through the bottom of the mast. Match-mark the nut positions on anchors.

d. With the cylinders completely collapsed, disconnect the center cylinder of the cluster at the elbow (43).

e. Remove the nut (51) and lock washer (50) securing the cluster center cylinder to the intermediate mast (49).

f. Using a hoist carefully lift the cylinder cluster (42) from the intermediate mast (49).

g. Remove the chain anchors (22) and nuts (16) from the cluster.

h. Remove the screws (17), lock washers (18), and chain guards (19) from the crossheads (27).

i. Remove the bearing shaft retainer (28) and tap out the bearing shaft (21), and remove washers (24 and 26) and bearings (25) from the crossheads.

j. Remove the screws (20) and crossheads (27) from the top of the cylinder cluster (42).

3-18. Disassembly

a. Refer to figure 3-6 and disassemble as follows:

Note. Disassembly applies to both outer and center cylinder assemblies, unless otherwise specified.

b. Remove the gland nut (6) from the tube (12) with a spanner wrench and discard the locking pellets (5).

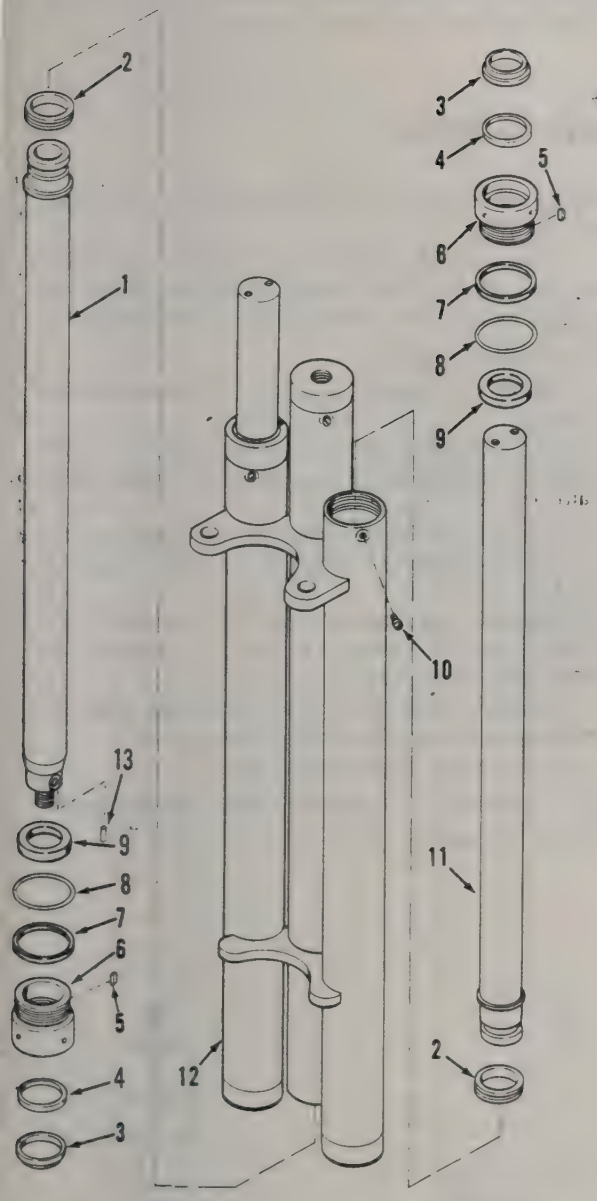
c. Remove the wiper ring (3) and packing (4) from the gland nut (6). Discard the wiper ring and packing.

d. Remove the backup ring (7), packing (8), and stop ring (9) from the ram (1 and 11). Discard the backup ring and packing.

e. Remove the spring pin (13) from the center ram (1).

f. Carefully slide the rams (1 and 11) from the tube (12) and remove the wear block (2) from the ram.

g. Remove the bleed screws (10).



1. Center ram
2. Wear block
3. Wiper ring
4. Packing
5. Locking pellet
6. Gland nut
7. Backup ring
8. Packing
9. Stop ring
10. Bleed screws
11. Outer ram
12. Tube assembly
13. Pin

Figure 3-6. Cylinder cluster, exploded view.

3-19. Cleaning, Inspection, and Replacement

a. Clean all metal parts with cleaning compound, solvent (Fed. Spec. P-D-680). Dry thoroughly with dry, compressed air.

b. Inspect the parts for wear or damage. Remove nicks and scratches with fine emery paper.

c. Replace all the packing, wiper rings, and backup rings regardless of condition. Replace all other unserviceable parts as authorized.

3-20. Assembly

a. Refer to figure 3-6 and assemble as follows:

Note. Assembly applies to both outer and center cylinder assemblies unless otherwise specified.

b. Loosely install the bleeder screws (10) in the tubes (12).

c. Install the wear blocks (2) on the rams (1 and 11) and carefully slide the rams into the tubes (12).

d. Insert the spring pin (13) in the center ram (1).

e. Install the stop ring (9), new packing (8), and backup ring (7) on the ram (1 and 11).

f. Install a new wiper ring (3) and packing (4) in the gland nut (6).

g. Using new locking pellets (5), secure the gland nut (6) to the tube (12) with a spanner wrench.

3-21. Installation

To install the cylinder cluster without installing the inner mast, refer to figure 3-3 and proceed as follows:

a. Install the crossheads (27) on top of cylinder cluster and secure with screws (20).

b. Install bearings (25), washers (24 and 26), the bearing shafts (21) in the crossheads (27) and secure the assemblies to crossheads with the bearing shaft retainer (28).

c. Install the chain guards (19) on crossheads, with the rods through the holes in the cylinder brackets. Secure the guards to the crossheads with screws (17) and lock washers (18).

d. Using a hoist, carefully install the cylinder cluster (42) on the intermediate mast and secure at the bottom with the nut (51) and lock washer (50).

e. Attach the chains (23) to the chain anchors (22) and install the anchors and nuts (16), noting match-mark of previous adjustment.

f. Run the chains evenly around the bearings (25), allowing them to hang free.

g. Connect the tube assembly (44) to the center cylinder at the elbow (43).

h. Using hoist, raise carriage into inner mast (31) and attach the chains to the chain anchors.

i. Lower the inner mast and install the screws and spacer on carriage roller supports and carriage forks. Install and lock forks in position.

j. Using the chain anchors (22) and nuts (16), adjust the carriage to 2¾ to 3¼ inches from floor. Adjust both anchors to equal the chain tension.

k. Check to see that the bleeder screws are loose. Operate the control valve to actuate the cylinders and slowly raise and lower mast. When a clear, bubble free oil flow from bleeder screw hole is obtained, tighten the bleeder screws.

Section V. SINGLE CYLINDER ASSEMBLY

3-22. Description

The single cylinder assembly is installed on the inner portion of the intermediate mast, with the cylinder ram extending through an opening in the intermediate mast and anchoring at the lower part of the outer mast. The upper portion of the cylinder is secured in a bracket. Forcing the single cylinder ram downward against the outer mast will raise the intermediate mast. Full extension of the ram will raise the carriage to its highest level.

3-23. Removal

To remove the single cylinder assembly without removing the inner mast, proceed as follows:

Caution: **When disassembling or reassembling cylinders, use extreme care to avoid damaging the ram surface finish.**

a. Remove cylinder cluster (para 3-17).

b. Refer to figure 3-3 and continue removal as follows:

c. Remove the screw (12) and lock washer (13) attaching the cylinder to the bracket (11) at the top of the intermediate mast.

d. Remove the nut (62) and lock washer (61) securing the cylinder to the bottom of the outer mast (2).

e. Using a hoist, remove the cylinder assembly from the intermediate mast (49) and place on supports to prevent rolling during disassembly.

3-24. Disassembly

a. Refer to figure 3-7 and disassemble as follows:

b. Remove the gland nut (8) from tube (3) with a spanner wrench and discard the locking pellets (5).

c. Remove the wiper ring (6) and packing (7) from the gland nut (8). Discard the wiper ring and packing.

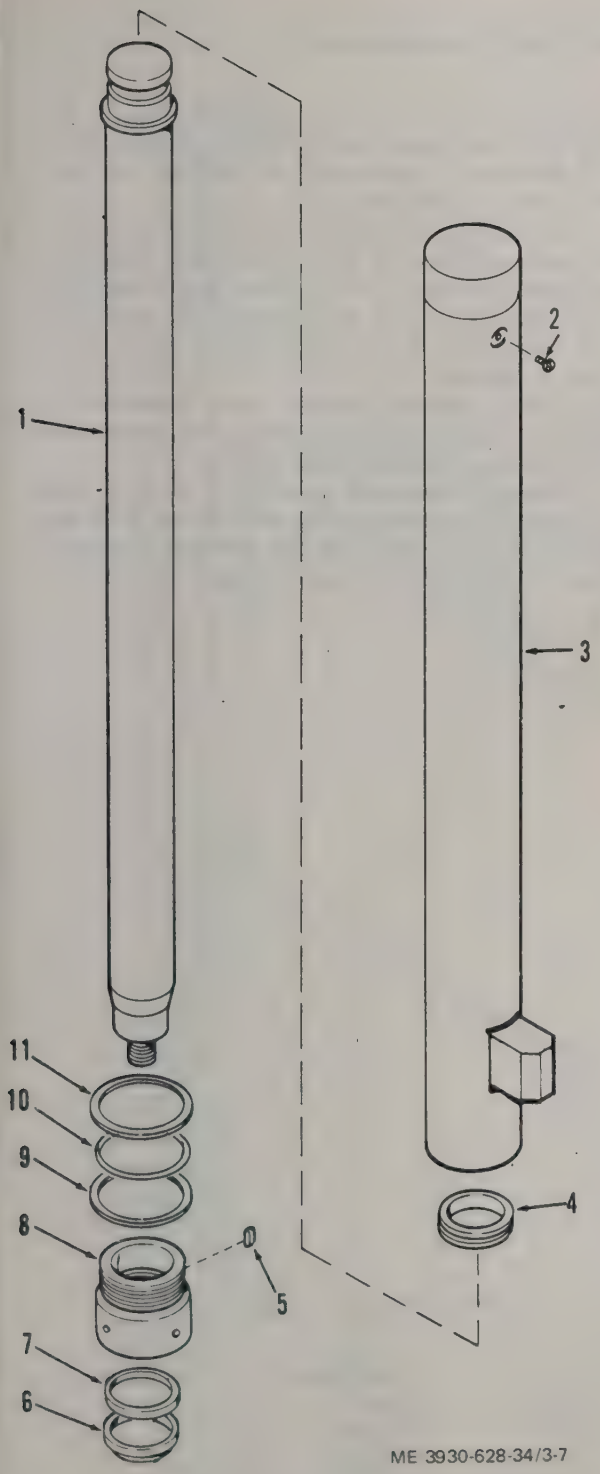
d. Remove the backup ring (9), packing (10), and stop ring (11) from the ram (1). Discard the backup ring and packing.

e. Carefully slide the ram (1) from the tube (3) and remove the wear block (4) from the ram.

f. Remove the bleed screw (2).

3-25. Cleaning, Inspection, and Replacement

Refer to paragraph 3-19.



1. Ram
2. Bleed screw
3. Tube assembly
4. Wear block
5. Pellet
6. Wiper ring
7. Packing
8. Gland nut
9. Backup ring
10. Packing
11. Stop ring

Figure 3-7. Single cylinder assembly, exploded view.

3-26. Assembly

a. Refer to figure 3-7 and assemble as follows:

b. Loosely install the bleeder screw (2) in the tube (3).

c. Install the wear block (4) on the ram (1) and carefully slide the ram into tube (3).

d. Install the stop ring (11) and new packing (10) and backup ring (9) on the ram.

e. Install the new packing (7) and wiper ring (6) in the gland nut (8).

f. Using new locking pellets (5), secure the gland nut (8) to the tube (3) with a spanner wrench.

3-27. Installation

To install the single cylinder assembly without removing the mast, refer to figure 3-3 and proceed as follows:

a. Using a hoist, remove the single cylinder assembly from the supports and install the cylinder through the intermediate mast (49) and secure to the outer mast (2) with the lock washer (61) and nut (62).

b. Secure the cylinder assembly to the bracket at top of intermediate mast (49) with the lock washer (13) and screw (12).

c. Install cylinder cluster as described in paragraph 3-21, being sure to tighten the bleeder screw (2, fig. 3-7) when a clear, bubble free oil flow is obtained.

3-28. Description

The fork lift carriage frame assembly is a welded assembly having two horizontal fork supports and two vertical carriage supports. The carriage supports each carry two welded stud bearing assemblies, which ride in the inner mast channels. The backrest assembly is a welded frame attached to the upper fork support. It serves to prevent loads from resting against the mast when the mast is tilted back.

3-29. Removal and Disassembly

a. Fully retract mast assembly and unlock and remove carriage forks.

b. Refer to figure 3-8 and remove and disassemble as follows:

c. Using a hoist, remove the screws (3) and lock washers (2) attaching the backrest (1) to the carriage frame assembly (7). Remove backrest.

d. Raise the inner mast 24 inches from the floor and block in position.

e. Remove the screws (11 and 13), spacer (9) and lock washers (10) from the carriage supports.

f. Attach a hoist to the carriage frame assembly (7), remove the slack and balance the load.

g. Disconnect the chains (12) from the carriage frame assembly (7).

h. Slowly lower the carriage frame assembly out the bottom of the inner mast and place on suitable supports, bearing assemblies up.

i. Noting the size and quantity of shims (5 and 6), remove the bearings (4) and shims from the welded studs (8 and 14) on carriage supports. Remove screw (15) to remove upper bearing.

KEY to fig. 3-8:

1. Backrest
2. Lock washer
3. Screw
4. Bearing
5. Shim
6. Shim
7. Frame assembly
8. Stud
9. Spacer
10. Lock washer
11. Screw
12. Chain link
13. Screw
14. Upper stud
15. Screw

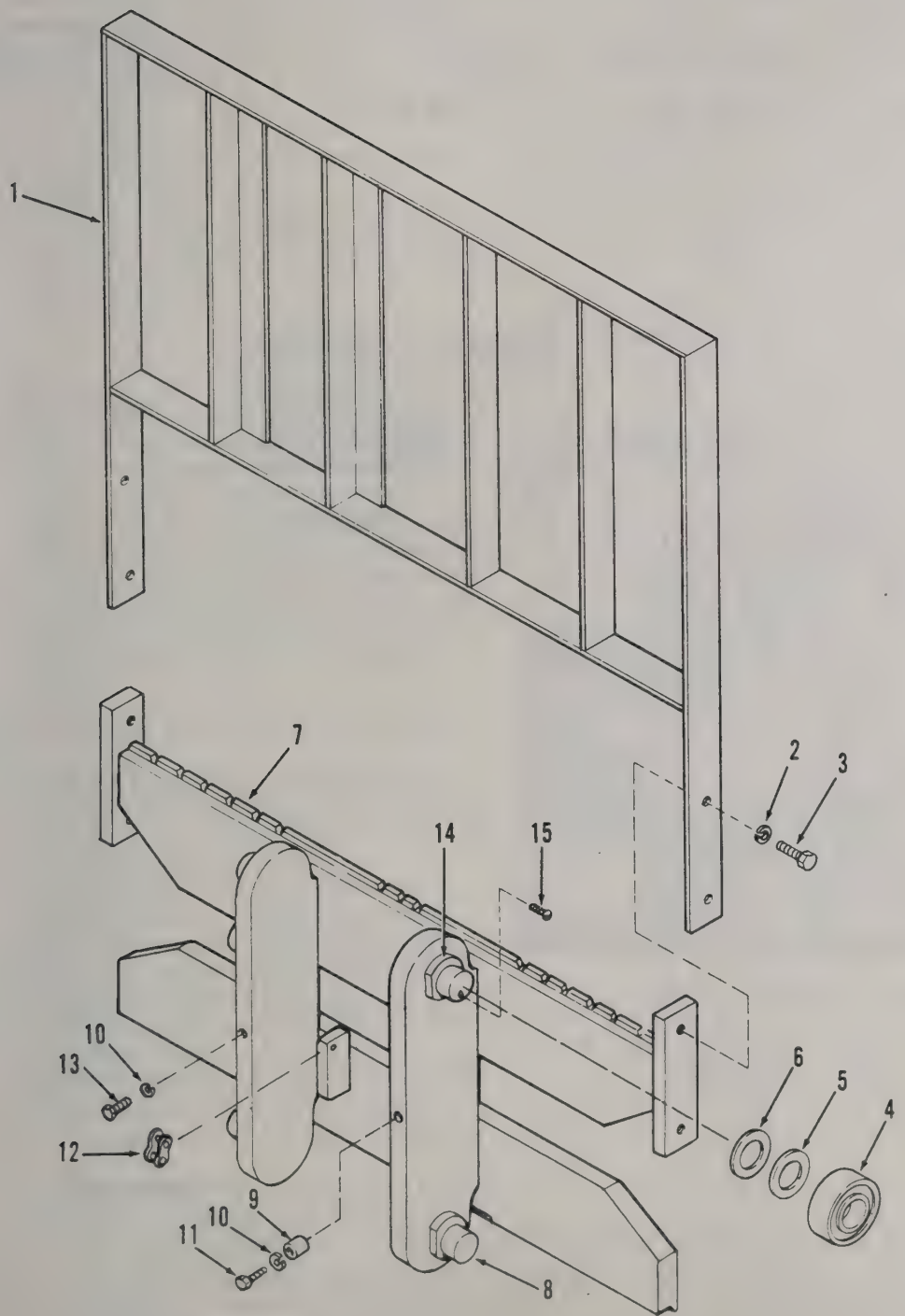


Figure 3-8. Backrest and carriage assembly, exploded view.

3-30. Cleaning, Inspection and Replacement

a. Clean the parts with cleaning compound, solvent (Fed. Spec. P-D-680).

b. Inspect the backrest for cracked or broken welds, and any wear or bends which could interfere with heavy use.

c. Inspect the frame assembly for cracked or broken weldments, unusual wear or bends, and misalignment of vertical carriage supports.

Note. Examine the stud weldments closely.

d. Repair parts by welding if practical. When welding the bearing studs use the procedure outlined in paragraph 3-13. Refer to figure 3-9 for stud location.

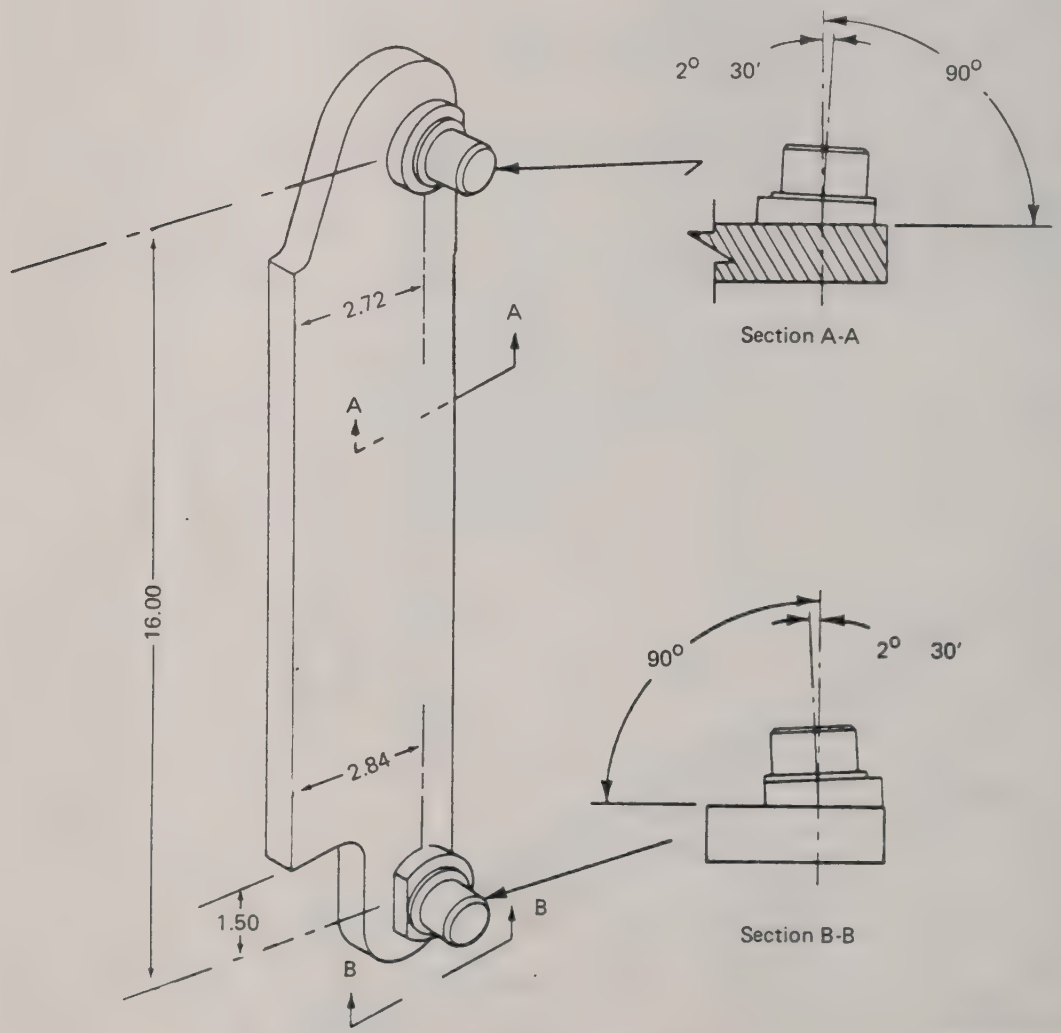


Figure 3-9. Carriage roller stud location.

e. Replace defective parts as authorized.

3-31. Assembly and Installation

a. Refer to figure 3-8 and assemble and install as follows:

b. Install the same size and quantity of shims (5 and 6) as found in disassembly. Install the bearings (4). Secure upper bearing with screw (15). Tighten screw only to snug fit.

c. Using a hoist, raise and lower the carriage frame assembly in the inner mast channels several times to check for free movement throughout the entire range of travel. If the bearings bind, reshim to 0.015 of an inch clearance between the bearings and the mast channel.

Note. Divide the shims as equally as possible between the bearings. Shims are available in 0.015 and 0.040 inch thicknesses.

d. When the carriage frame moves freely within the clearance specified, secure the chains with the anchor pins to the frame. Before releasing the hoist, check to see that chains are secure at the cylinder cluster and running evenly, with no twists, through the crosshead bearings.

e. Install the screws (11 and 13), spacer (9), and lock washers (10) in carriage supports.

f. Remove the blocks and lower the inner mast to the floor using a suitable hoist.

g. Using a hoist, install the backrest (1) on the carriage frame (7) with lock washers (2) and screws (3).

h. Operate the mast assembly and check the carriage movement for side play and binding. If necessary, remove the carriage and backrest assembly again and reshim. Alignment of the inner mast channels and bearings should also be checked, if a second removal is necessary.

i. Lower the carriage to the lowest point of travel, check the distance from the lower horizontal fork support to the floor. The distance should be adjusted within a 2¾ to 3¼ inch range. Refer to TM 10-3930-628-12 for adjustment procedure.

j. Install and lock the carriage forks.

Section VII. HYDRAULIC RESERVOIR

3-32. Description

A hydraulic reservoir, located under the floor plate in the driver's compartment, contains sufficient oil for the entire hydraulic system. The tank is of welded construction. Oil is added through a gage opening and measured on a screened gage installed in the tube. The reservoir is drained through a pipe plug installed in the bottom of the tank. Oil is withdrawn by the pump and returned from the control valve via a hydraulic oil filter through tubing.

3-33. Removal

a. Refer to figures 3-10 and 3-11 and remove as follows:

b. Remove the floor plates. Drain the reservoir by removing the drain plug located at the bottom of the hydraulic reservoir. Disconnect hoses from reservoir. Plug ends of hoses.

c. Remove the breather (1, fig. 3-11), gage (2), and screen (3) from the top of the reservoir (8).

d. Tag and disconnect the electrical leads at the thermal relays (refer to figure 3-10) mounted on the hydraulic réservoir. Remove the nuts and lock washers securing the thermal relays to the reservoir; remove the relays.

e. Lift the front end of the truck and block in position to permit removal of the reservoir.

f. Block the reservoir to support it during removal.

g. Remove the screws (8 and 10, fig. 3-11), washers (6), lock washers (5) and nuts (4).

h. Slowly lower and remove the reservoir (7).

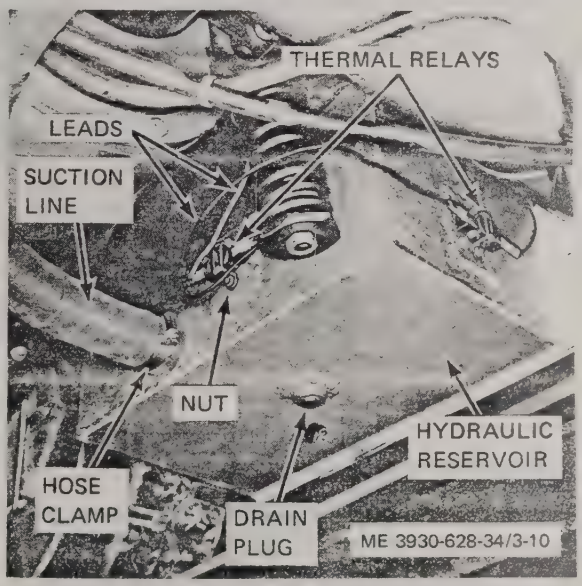


Figure 3-10. Hydraulic oil reservoir.

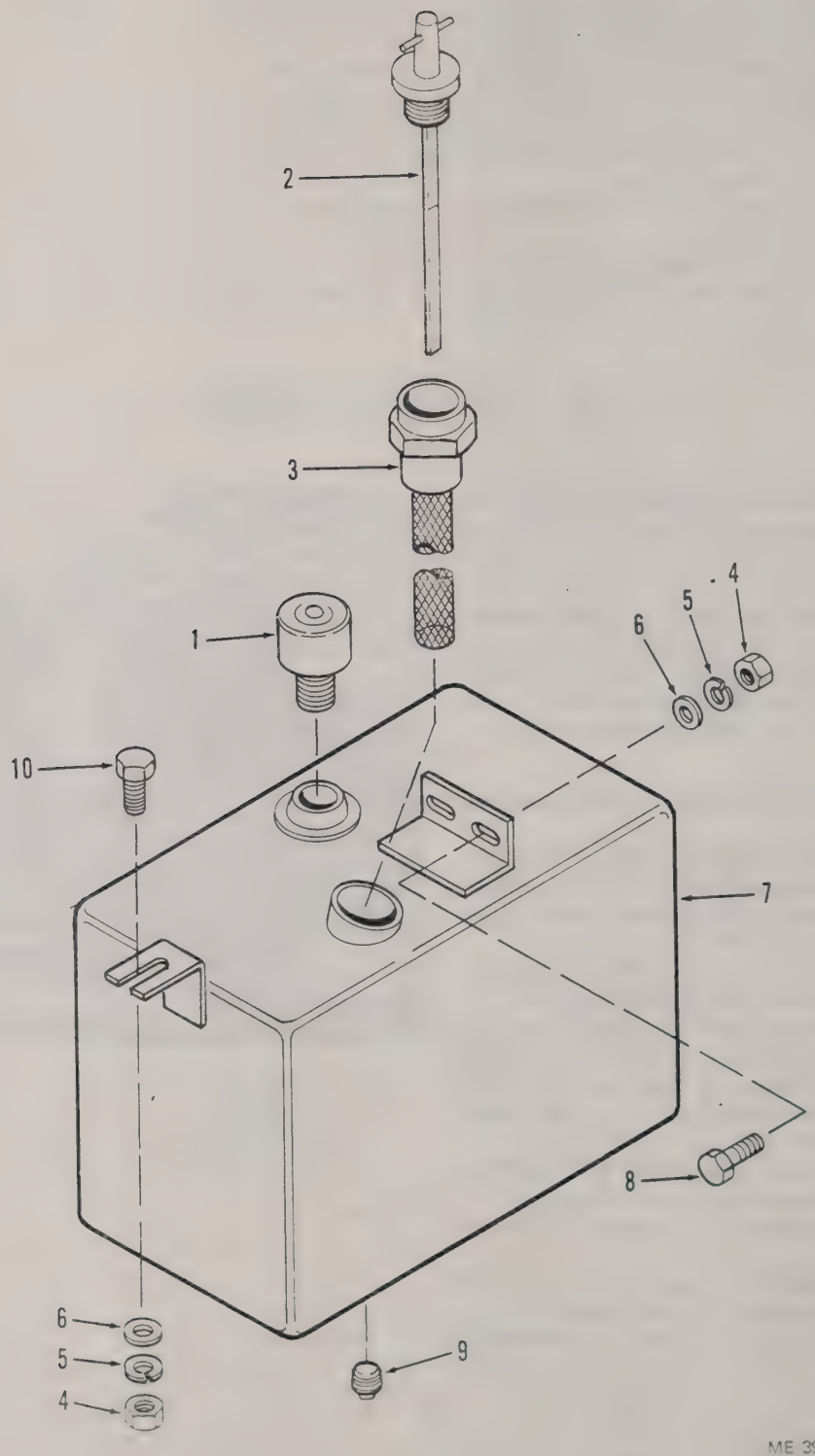


Figure 3-11. Hydraulic oil reservoir, exploded view.

KEY to fig. 3-11:

1. Breather
2. Gage
3. Screen
4. Nut
5. Lock washer
6. Washer
7. Reservoir
8. Screw
9. Drain plug
10. Screw

3-34. Cleaning and Inspection

a. Flush the reservoir (7, fig. 3-11) with cleaning compound, solvent (Fed. Spec. P-D-680). Dry thoroughly with compressed air.

b. Inspect the tank for rust, cracked seams or damaged threads.

c. Clean the breather and gage screen with a reverse flow of hydraulic fluid or compressed air.

d. Inspect all parts for damage and replace as authorized.

3-35. Repair

a. If damage is such that repair by welding is possible, flush the tank thoroughly to remove all traces of explosive solvents, both liquid and vapor.

Note. The reservoir must be thoroughly cleaned and flushed after repair.

b. If the tank is beyond reasonable welding repair, replace as authorized.

3-36. Installation

a. Refer to figures 3-10 and 3-11 and install as follows:

b. Using care not to damage tubing, lift the reservoir (7, fig. 3-11) into position at the bottom of the truck and secure it with screws (8 and 10), washers (6), lock washers (5), and nuts (4).

c. Install the drain plug in the bottom of the tank.

d. Connect the suction line to the tank.

e. Secure the thermal relays in place with nuts and washers. Remove the tags and connect the electrical leads to the relays.

f. Check that the reservoir is securely mounted and then lower the truck.

g. Connect the return line to the top of the reservoir.

h. Install the breather (1) and screen (3) in the reservoir (7).

Caution: **NEVER USE BRAKE FLUID. When filling the tank, make sure that the containers and the surrounding parts are clean, to prevent oil contamination. Any hydraulic oil that is used must contain a rust preventative and an oxidation inhibitor. The oil should not foam.**

i. Refer to LO 10-3930-628-12 and fill the reservoir with the specified hydraulic oil.

j. Install the gage (2) in the tank.

k. Install the floor plates.

Section VIII. HYDRAULIC PUMP

3-37. Description

The hydraulic pump is a tandem type dual gear unit driven directly by the series wound hydraulic pump motor. The pump has a common suction port and two discharge ports (primary and secondary). The primary discharge port supplies hydraulic oil to the control valve for the tilt cylinders, whereas the secondary discharge port supplies hydraulic oil to the lift cylinder. The internal parts of the pump are machined to a high degree of accuracy and the tolerances are very close.

3-38. Removal

a. Refer to figure 3-12 and remove the hydraulic pump as follows:

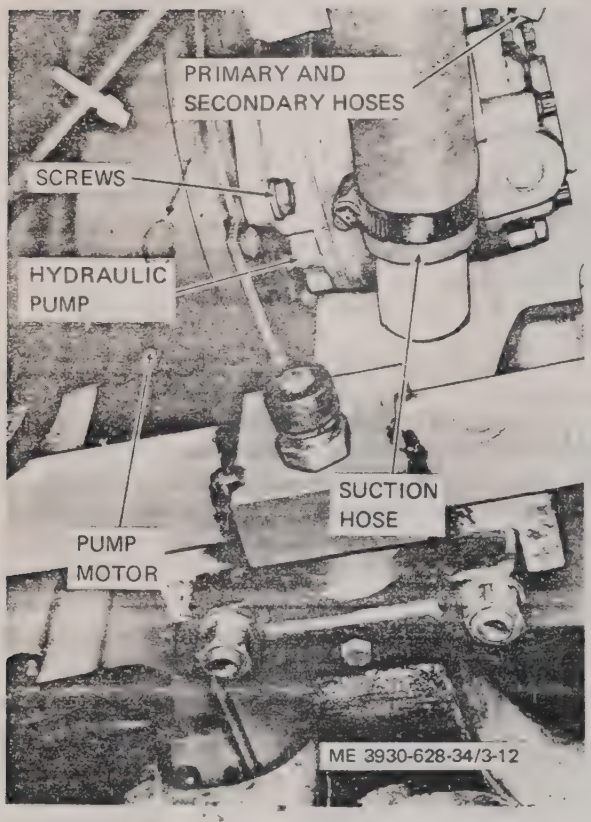


Figure 3-12. Hydraulic pump removal.

b. Raise the rear of the truck to gain access to the hydraulic pump and block the truck in the raised position. Drain the hydraulic system.

Caution: **Make certain that the battery connector is disconnected. Turn the key switch ON and OFF several times to discharge the capacitors, then leave the key in the OFF position.**

c. Tag and disconnect the suction hose and the primary and secondary discharge hoses. The hydraulic hoses should be plugged upon removal to prevent the entry of foreign material into the system and the loss of hydraulic fluid.

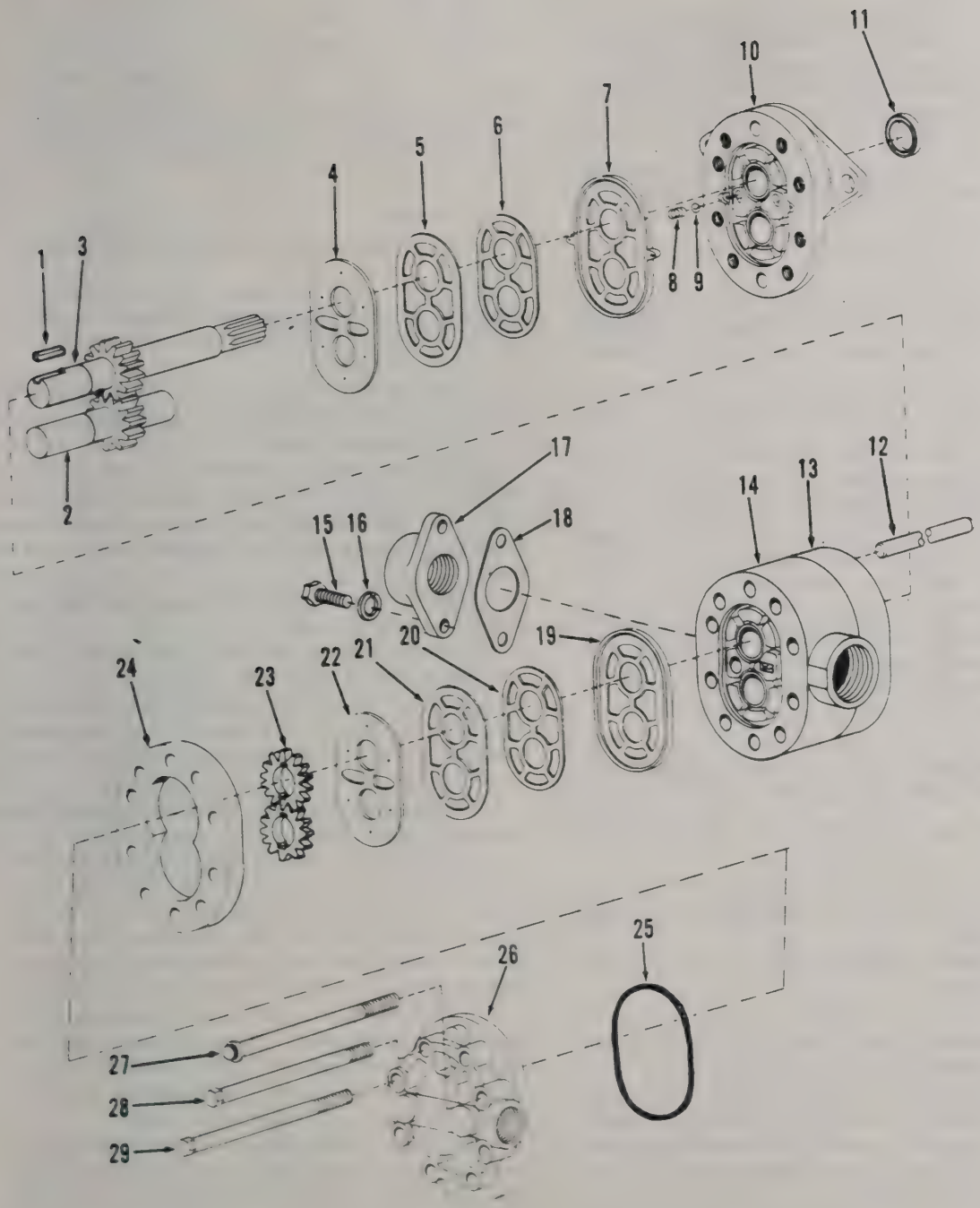
d. Remove the screws and lock washers securing the pump to the pump motor. Pull the pump shaft out of the armature shaft.

3-39. Disassembly

a. Refer to figure 3-13 and disassemble the hydraulic pump as follows:

KEY to fig. 3-13:

1. Key
2. Idler gear and shaft
3. Drive gear and shaft
4. Diaphragm
5. Back-up gasket
6. Gasket protector
7. Diaphragm seal
8. Spring
9. Ball
10. Front plate
11. Oil seal
12. Dowel pin
13. Body
14. Body adapter
15. Screw
16. Lock washer
17. Port adapter
18. Gasket protector
19. Diaphragm seal
20. Gasket protector
21. Back-up gasket
22. Diaphragm
23. Slip fit gears
24. Gear body
25. Preformed packing
26. Backplate
27. Screw
28. Screw
29. Screw



ME 3930-628-34/3-13

Figure 3-13. Hydraulic pump, exploded view.

b. Clean the outside of the pump thoroughly with cleaning compound, solvent (Fed. Spec. P-D-680).

c. Scribe a mark across the back plate (26), body (24) and body (13), body adapter (14) and front plate (10) to assure proper reassembly.

d. Cover the drive gear shaft (3) splines with tape to protect the splines and oil seal (11) during disassembly.

e. Remove the screws (27, 28 and 29) from the back plate (26). Separate the back plate (26) from the slip-fit gear body (24).

f. Remove the packing (25) from the back plate (26).

g. Remove the screws (15) and lock washers (16) from the port adapter (17). Separate the port adapter (17) and gasket (18) from the body adapter (14).

h. Carefully shake the pump to remove the slip-fit gears (23).

i. Remove the key (1) from the gear shaft (3).

j. With a rubber mallet, tap the splined end of the drive shaft (3) to separate the front plate (10) from the body (13). Remove the drive shaft and gear assembly (3) and the idler shaft and gear assembly (2) from the front plate (10).

k. Remove the diaphragm (4 and 22), back-up gasket (5 and 21), gasket protector (6 and 20), and diaphragm seal (7 and 19) from the front plate (10) and body assembly (14). Remove steel balls (9) and springs (8) from front plate (10).

l. With a drift pin, remove the dowel pins (12) securing the body (13) and body adapter (14). Separate the body and adapter.

3-40. Cleaning, Inspection and Replacement

a. General.

(1) Clean all parts with cleaning compound, solvent (Fed. Spec. P-D-680). Dry thoroughly with compressed air.

(2) Remove nicks and burrs from all parts with emery cloth.

b. Drive and Idler Gears.

(1) Inspect the drive gear shaft for a broken keyway or damaged splines.

(2) Inspect both the drive gear and the idler gear at bearing and seal contact points for rough surfaces or excessive wear. If the shafts measure less than 0.6850 inch in the bearing area, the gear assembly must be replaced.

(3) Inspect the drive, idler and slip-fit gear faces for scoring and excessive wear. If the gear width of the drive gear and idler gear assemblies is less than 0.767 inch, they should be replaced. If the slip-fit gears are less than 0.371 inch in width, they must be replaced.

c. Bearings.

Note. The bearings are part of the plate assemblies (10 and 26) and are not available separately.

(1) Inspect all bearing oil grooves for nicks and burrs.

(2) Measure the inside diameter of the bearings. If the inside diameter is greater than 0.691, the plate assemblies must be replaced.

(3) The gear pockets (large internal diameters) in the gear bodies (24 and 13) must be checked for excessive wear and scoring. The bodies should be replaced if the inside diameter of the gear pocket exceeds 1.719 inches.

3-41. Assembly

a. Refer to figure 3-13 and assemble the pump as follows:

Note. All parts must be coated with clean hydraulic oil before assembly. All seals, gaskets and diaphragms should be replaced with new parts. Care must be taken to keep all parts clean during assembly.

b. Tuck the diaphragm seal (7) into the grooves in the front plate assembly (10) with the open part of the "V" section down.

c. Press the gasket protector (6) and back-up gasket (5) into the diaphragm seal (7). Drop the steel balls (9) into the seats in the front plate assembly (10) and position the springs (8) over the balls.

d. Place the diaphragm on the top of the back-up gasket, bronze face up.

e. Repeat steps *b*, *c*, and *d* above for installing the diaphragm seal (19), gasket protector (20), back-up gasket (21) and diaphragm (22) in the body adapter (14). The intake hole in the diaphragm must be aligned over the intake hole in the face of the body adapter.

f. Slide the gear assemblies (2 and 3) through the bearings in front plate (10).

g. Apply a thin coat of heavy grease to both milled faces of the body (13). Position the body over the gears onto the front plate (10). The half moon port cavities in the body must face away from the front plate. The small drilled hole in one of the cavities must be on the pressure side of the pump.

h. Install dowel pins (12) in body adapter (14). Slide the body adapter (14) over the gear shaft and tap into place on body (13) with a rubber mallet. Install the key (1) on the drive shaft (3) and slide the slip-fit gears (23) onto the shafts.

i. Coat both of the milled surfaces of the slip-fit gear body (24) with a thin coat of heavy grease. Slide the body (24) over the gears (23) onto the body adapter (14). The half moon cavities in the body must face away from the body adapter. The small drilled hole in one of the cavities must be on the pressure side of the pump.

j. Position the back plate (26) onto the slip-fit gear body (24). Secure the pump sections together with screws (27, 28 and 29). Tighten the screws to a torque of 25 foot pounds.

k. Position the port gasket (18) and port adapter

(17) on the pump housing (14) and secure in place with screws (15) and lock washers (16). Tighten to a torque of 10-12 foot pounds.

l. Work the shaft seal (11) over the drive shaft (3) into position in the front plate (10). Oil the seal liberally when installing. Take care not to damage the oil seal rubber lip.

m. Rotate the pump shaft by hand and check for excessive binding. The pump will have a small amount of drag, but should turn freely after a short period of use.

3-42. Installation

a. Slide the pump drive gear shaft into the internal splines in the hydraulic pump motor armature shaft. Secure the pump to the pump motor housing with screws and lock washers. Refer to figure 3-12.

b. Unplug the hydraulic hoses and reconnect them to the pump.

c. Raise the truck, remove the blocks and lower the truck to the floor. Operate the control valve for several minutes and check the operation of the pump.

d. Check and replenish the hydraulic oil supply as directed in LO 10-3930-628-12.

Section IX. HYDRAULIC CONTROL VALVE

3-43. Description

The hydraulic control valve serves to direct pressurized hydraulic oil from the hydraulic pump to the tilt or lift cylinders. It contains two operating plungers, two check valves, and an adjustable relief valve. The single acting plunger operates the lift cylinders and the double acting plunger operates the tilt cylinders. When over 1200 psi oil pressure is applied, the check valve allows oil flow to either the lift or tilt cylinders when the levers are activated. The adjustable relief valve is a protective device that prevents damage to the hydraulic system due to pressures over 2000 psi. Such pressures are normally caused when the lift or tilt cylinders reach full stroke and continued pump operation builds up pressure. If the pressure rises above the relief valve pressure adjustment (1850 to 1950 psi), then the valve unseats and allows oil to by-pass the plungers and return, through a filter, to the reservoir.

3-44. Removal

a. Make sure that the lift cylinders are collapsed and the mast is tilted all the way forward.

b. Remove the center cover panel in the operator's compartment to expose the control valve and connections.

c. Tag, disconnect and plug all the hydraulic lines from the control valve.

d. Disconnect the yokes connecting the control lever linkage to the control valve by removing the nuts and clevis pins (refer to fig. 3-14).

e. Remove the control valve from the truck by removing the control valve mounting nuts and washers.

f. Thoroughly clean the exterior of the control valve with cleaning compound, solvent (Fed. Spec. P-D-680).

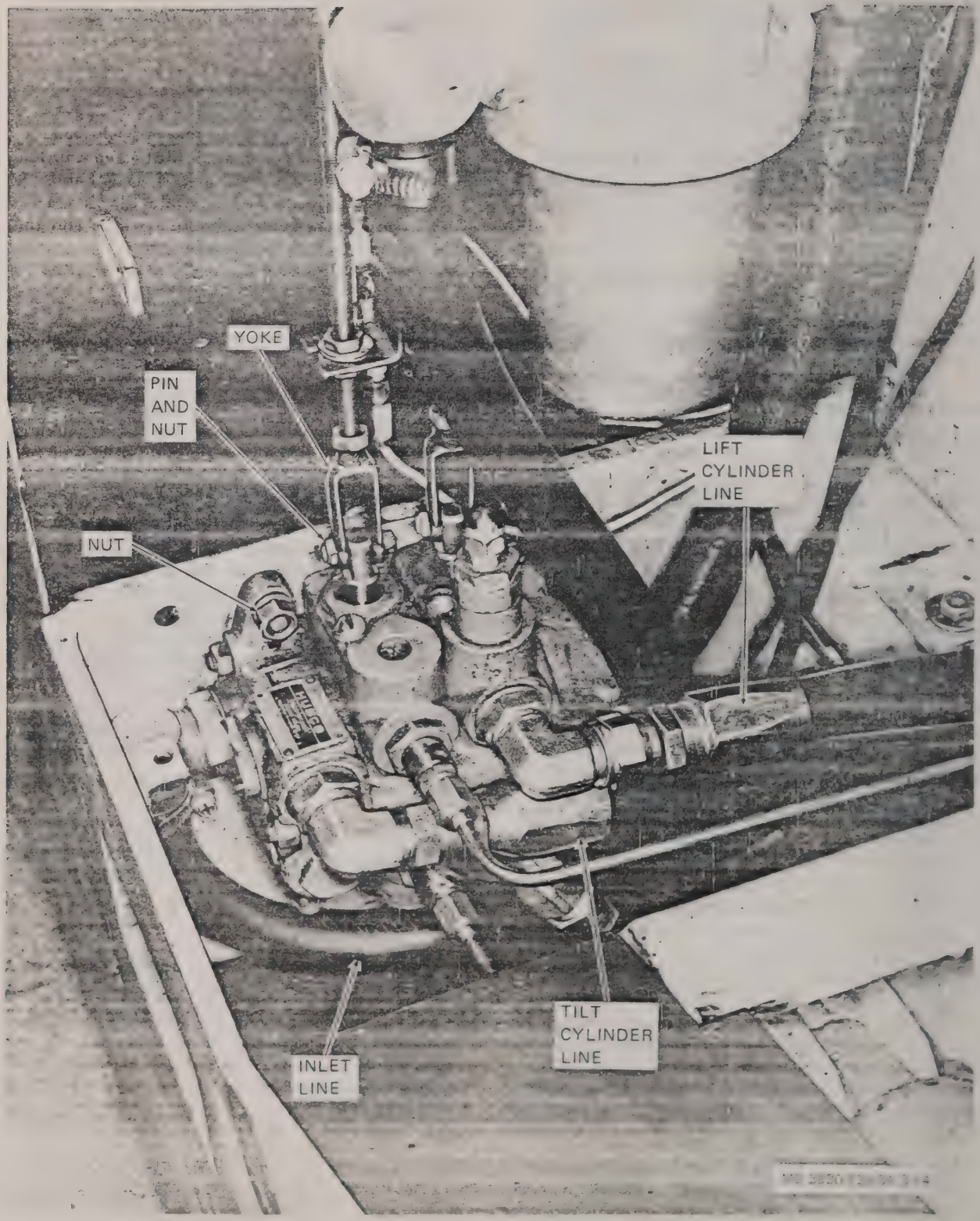


Figure 3-14. Control valve removal.

3-45. Disassembly

Caution: **It is extremely important that all parts be kept clean at all times, and that all machined surfaces be protected from nicks, scoring, gouging, and other damage.**

a. Disassembly of the Inlet Section. Refer to figure 3-15 and disassemble the inlet section as follows:

(1) Remove the acorn nut (1), jam nut (3) and copper washer (2) from relief valve assembly.

(2) Turn the relief valve assembly (items 1 through 18) out of the inlet housing (24). Flats are provided on the cap (17) to remove the relief valve assembly.

(3) Remove the adjusting screw (4), spring (5), poppet "E" (6), preformed packings (8, 10 and 14) and back-up rings (9 and 15) from the plug (7). Count and record the number of turns required to remove the adjusting screw (4).

(4) Remove the poppet "K" (16) from the cap (17).

(5) Remove nuts (19) and lift inlet section (24) off the tie rods (65) and remove packing (25).

(6) Remove plugs (20 and 22) and packings (21 and 23) from inlet section housing (24).

b. Disassembly of Tilt Plunger Section.

(1) Remove the screws (29, fig. 3-15) securing the seal plate (30) to the plunger end of the tilt section (28); remove the seal plate (30).

(2) Remove the screws (76), plunger cap (77) and seal plate (82) at the opposite end of the housing and pull plunger (33) from the housing.

(3) Remove the wiper ring (31) and packing (32) from the plunger end of the tilt plunger section (28). Be sure to identify from which end the ring and packing were removed.

(4) Remove the special screw (78), plunger spring (80), spring seats (81 and 79), wiper ring (83) and packing (84) from plunger (33). The plunger must be identified with the correct plunger section. The intermixing of plungers will result in incorrect clearance and possible binding or sticking of plungers.

(5) Remove the plug (26) and packing (27) from the tilt plunger housing (28).

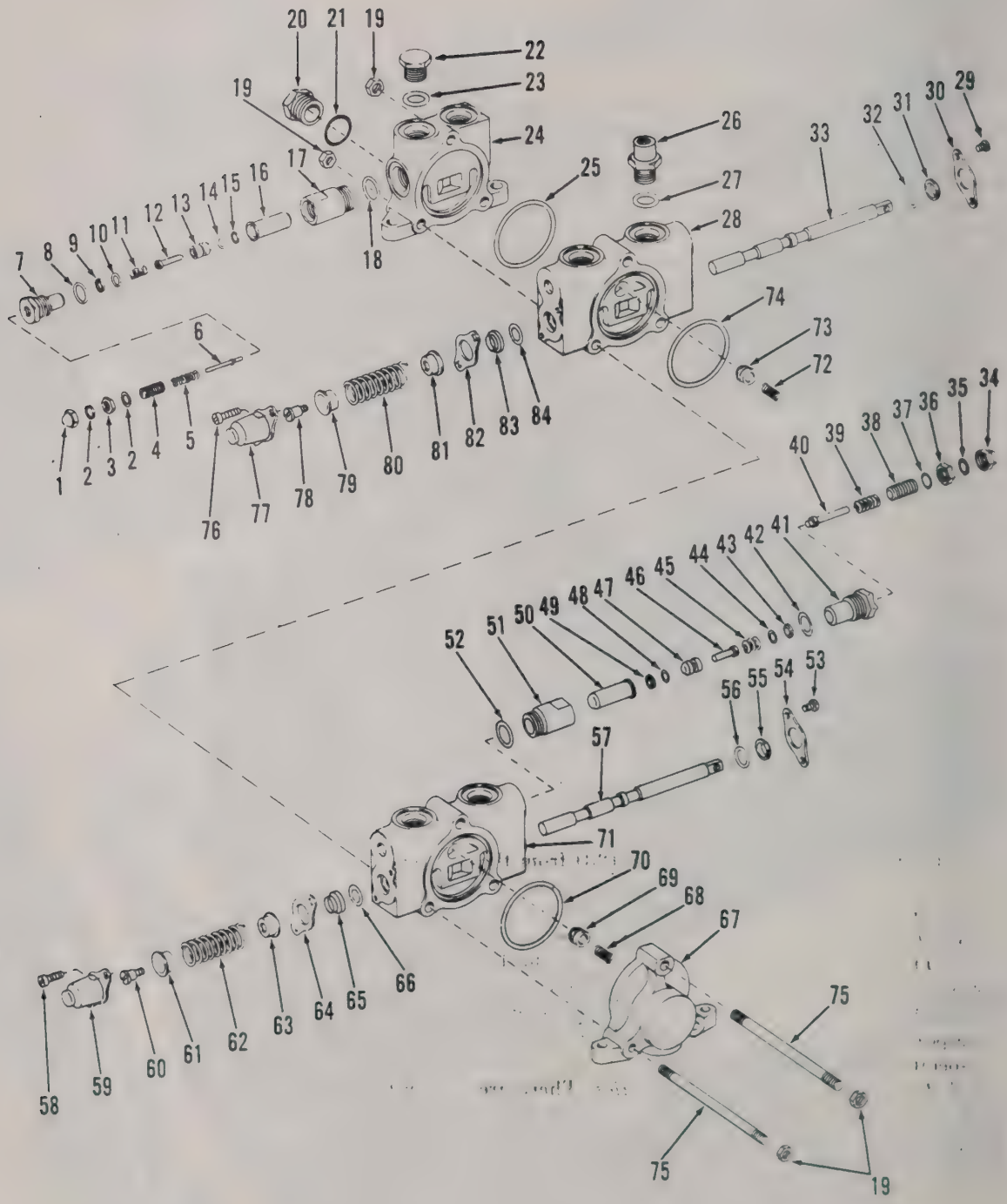


Figure 3-15. Control valve components.

KEY to fig. 3-15:

1. Acorn nut
2. Washer
3. Jam nut
4. Adjusting screw
5. Spring
6. Poppet "E"
7. Plug
8. Packing
9. Back-up ring
10. Packing
11. Spring
12. Piston
13. Poppet "D"
14. Packing
15. Back-up ring
16. Poppet "K"
17. Cap
18. Packing
19. Nut
20. Plug
21. Packing
22. Plug
23. Packing
24. Inlet section housing
25. Packing
26. Plug
27. Packing
28. Tilt plunger housing
29. Screw
30. Seal plate
31. Wiper
32. Packing
33. Plunger
34. Acorn nut
35. Washer
36. Jam nut
37. Washer
38. Adjusting screw
39. Spring
40. Poppet "E"
41. Plug
42. Packing
43. Back-up ring
44. Packing
45. Spring
46. Piston
47. Poppet "D"
48. Packing
49. Back-up ring
50. Poppet "K"
51. Cap
52. Packing
53. Screw
54. Seal plate
55. Wiper
56. Packing
57. Plunger
58. Screw
59. Cap
60. Special screw
61. Spring seat
62. Spring
63. Spring seat
64. Seal plate
65. Wiper
66. Packing
67. Outlet section
68. Spring
69. Poppet
70. Packing
71. Lift plunger housing
72. Spring
73. Poppet
74. Packing
75. Tie rod
76. Screw
77. Cap
78. Special screw
79. Spring seat
80. Spring
81. Spring seat
82. Seal plate
83. Wiper
84. Packing

(6) Slide the tilt plunger section (28) from the tie rods (75). Remove the spring (72), poppet (73) and packing (74) from tilt plunger section (28).

c. Disassembly of Lift Plunger Section.

(1) Disassembly of the relief valve in the lift plunger housing (71) is identical to *a* above.

(2) Removal of the lift plunger section components is identical to *b* above for all parts associated with plunger action.

d. Disassembly of the Outlet Section. There are no removable parts to the outlet section (67).

3-46. Cleaning and Repair

a. Clean all parts with compound, solvent (Fed Spec P-D-680).

b. Inspect the springs for cracks, wear, deformation, or other signs of weakness.

c. Inspect all seals for cracks, cuts or other damage.

d. Inspect all machined surfaces for nicks, scratches, gouges, or other damage which would cause internal or external leakage.

e. Inspect all housings for cracks, stripped threads or other damage which could effect operation.

f. Inspect plungers and plunger bores for scoring, nicks, chips, cracks, or other damage which could result in internal or external leaks.

g. Replace seals and defective parts as authorized.

3-47. Assembly

a. Prior to reassembling the control valve parts, lubricate each part with clean hydraulic oil.

b. Assembly of the Outlet Section. There are no parts to be reassembled in the outlet section.

c. Assembly of the Lift Plunger Section. Refer to figure 3-15 and assemble the lift plunger section as follows:

(1) Install packing (14) and back-up ring (15)

on poppet "D" (13). Packing is installed on top of back-up ring.

(2) Place poppet "D" (13) in poppet "K" (16).

(3) Position the piston (12) and spring (11) in poppet "D" and "K" assembly. The piston (12) is installed first.

(4) Place poppet "E" (6) and spring (5) in the plug (7). Secure the poppet (6) and spring (5) in place with the adjusting screw (4). Turn the screw in the same number of turns required for removal.

(5) Install the back-up ring (9) and packings (10) on the plug (7). The back-up ring is positioned towards the adjusting screw end of the plug.

(6) Install the packing (8) on the plug (7) and assemble the plug and cap assembly to complete the relief valve. Secure the relief valve in the lift plunger housing (71).

(7) Install the wiper (65) and packing (66) on the spring end of the plunger (57). Position the seal plate (64), spring seats (63) and (61) and spring (62) on the plunger (57) and secure with the special screw (60).

(8) Slide the plunger assembly into the housing bore and coat the spring with a light coat of multi-purpose grease. Position the plunger cap (59) over the spring end of the plunger and secure to the lift plunger housing (71) with screws (58).

(9) Install packing (56) and wiper (55) on the linkage end of the plunger (57). Secure seal plate (54) to lift plunger housing (71) with screws (53).

(10) Install packing (70), poppet (69) and spring (68) into the plunger housing.

d. Assembly of the Tilt Plunger Section. Refer to figure 3-15 and assemble the tilt plunger section as follows:

(1) Install the plug (26) and packing (27) into the tilt plunger housing (28).

(2) Repeat steps *b*(9) through *b*(12) above, to install the tilt plunger into the tilt plunger housing.

e. Assembly of the Inlet Section. Refer to figure 3-15 and assemble the inlet section as follows:

(1) Install the plugs (20 and 22) and packings (21 and 23) in the inlet section housing (24).

(2) Assemble and install the relief valve, as directed in steps *b*(1) through *b*(8) above, into the inlet section housing (24).

(3) Install packing (25) in the inlet section housing (24).

f. Position the inlet (24), lift (71), tilt (28), and outlet (67) sections together. Be sure that the packings, poppets and springs remain in place.

g. Connect the control valve sections together with the tie rods (75). Install the nuts (19) on each end of the tie rods (75) and tighten the 3/8 inch nuts to a torque of 33 foot-pounds and the 5/16 inch nuts to a torque of 14 foot-pounds.

h. Tape the openings on the control valve to avoid the entry of contaminants while installing the control valve.

3-48. Installation.

a. Mount the control valve on center plate located in the operator's compartment (fig. 3-14).

b. Remove the tape from the control valve and connect the hydraulic lines to the appropriate ports.

c. Connect the control handle linkage to the plungers.

3-49. Adjustment

a. Lift Plunger Section Relief Adjustment.

(1) Connect a pressure gage in the hydraulic line between the control valve and the outlet port of the primary hydraulic pump. Pressure gage must be calibrated to at least 2500 psi. Refer to figure 3-16.

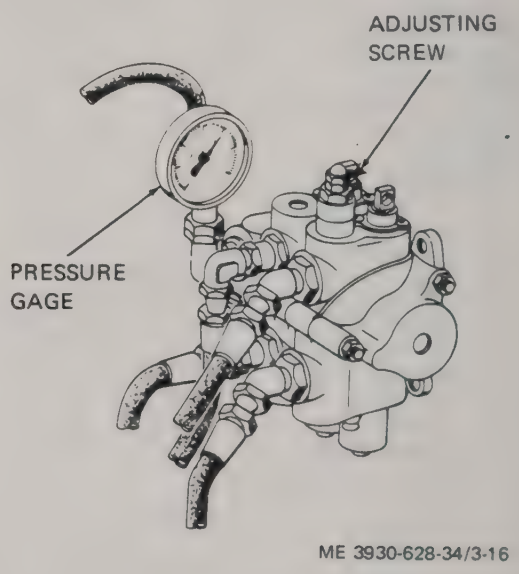


Figure 3-16. Lift plunger section relief adjustment.

(2) Remove the cap nut from the adjusting screw and loosen the locknut.

(3) Position the directional lever in neutral and turn on the key switch.

(4) Pull the lift control handle all the way back and hold in wide open position.

(5) Turn the adjusting screw in or out until a 1900 psi reading is registered on the pressure gage.

(6) Lock the adjusting screw in position with the locknut. Check the relief valve setting with a capacity load on the forks before gage is removed.

(7) Turn the key switch OFF and discharge the capacitors.

(8) Install the cap nut, remove the pressure gage and reconnect the hydraulic line.

b. Inlet Section Relief Valve.

(1) Remove the plug in elbow in hydraulic

control valve and connect a pressure gage in the elbow between the secondary outlet port of the hydraulic pump and the inlet port of the inlet section. Refer to figure 3-17.

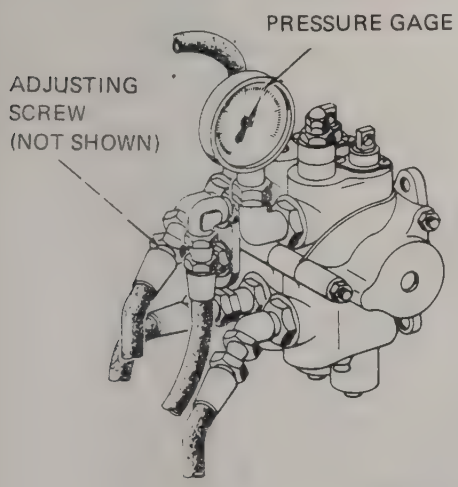


Figure 3-17. Inlet section relief adjustment.

(2) Repeat steps (1), (2) and (3) above.

(3) Pull or push the tilt control handle all the way backward or forward and hold in position.

(4) Turn the adjusting screw in or out until a 2100 psi reading is registered on the pressure gauge.

(5) Lock the adjusting screw in position and tighten the locknut.

(6) Place a capacity load on forks and tilt the mast all the way back. Relief valve should unseat at 2100 psi. A deflection in the gauge reading should be noticed.

(7) Turn the key switch OFF and discharge the capacitors.

(8) Install the cap nut, remove the pressure gauge and reconnect the hydraulic lines.

(9) Install the floor plate and control valve cover.

Section X. CONTROL VALVE LEVERS AND LINKAGE

3-50. Description

The lift and tilt hydraulic system control levers are located in the operator's compartment. They operate lift and tilt plungers in the hydraulic control valve.

3-51. Removal

Refer to TM 10-3930-628-12 to remove and disassemble the linkage and switch. Figure 3-18 illustrates the linkage.

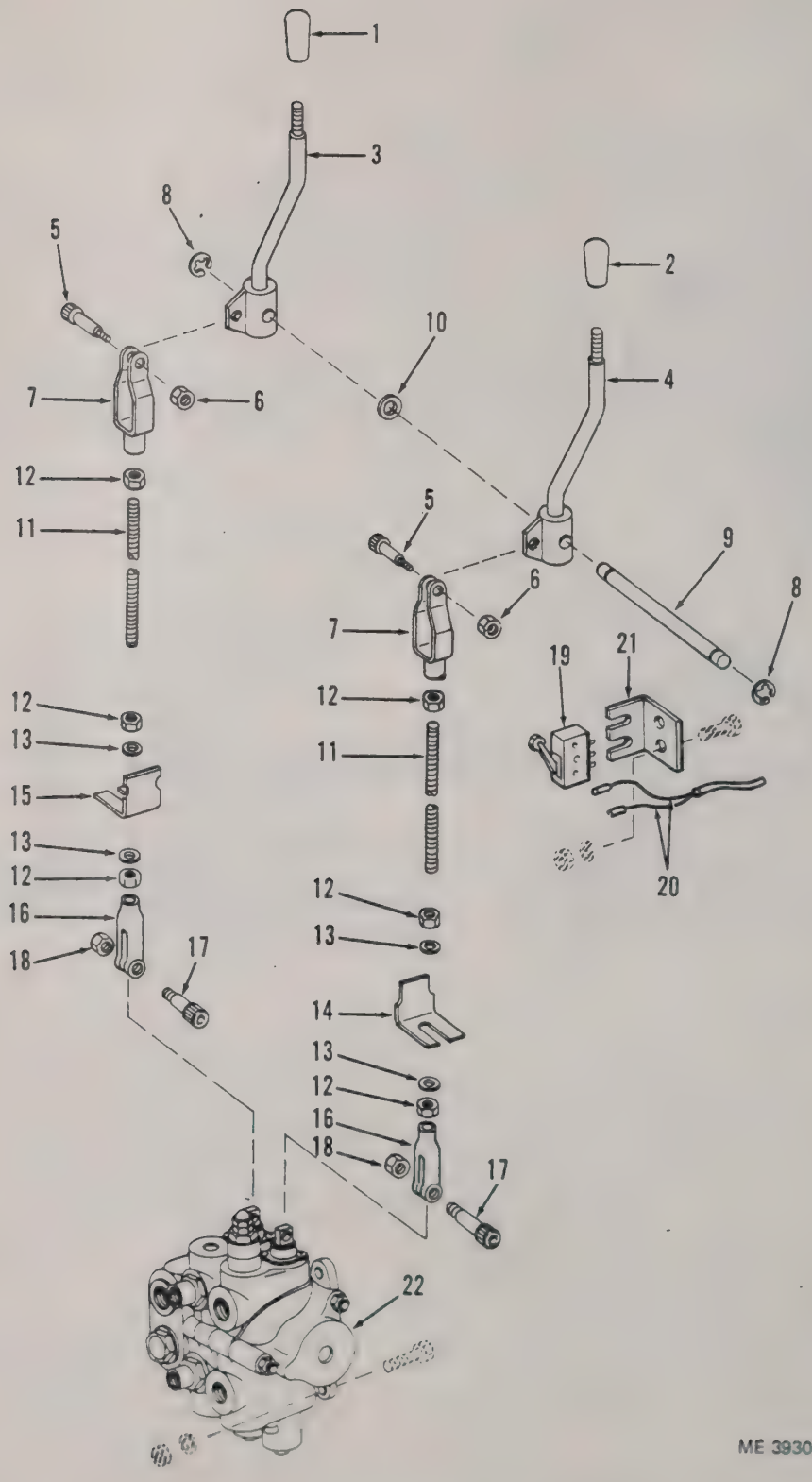


Figure 3-18. Control valve and linkage.

KEY to fig. 3-18:

1. Knob, tilt
2. Knob, lift
3. Lever, tilt
4. Lever, lift
5. Screw
6. Nut
7. Yoke
8. Retaining ring
9. Shaft
10. Spacer
11. Rod
12. Nut
13. Washer
14. Actuator, lift
15. Actuator, tilt
16. Yoke
17. Screw
18. Nut
19. Switch
20. Wires
21. Bracket

3-52. Cleaning, Inspection and Replacement

a. Clean all metal parts in cleaning compound, solvent (Fed. Spec. P-D-680).

b. Check all bearing surfaces for nicks, scoring, or other damage which might cause resistance to the return spring action of the control valve.

c. Replace any defective parts as authorized.

3-53. Installation

Refer to TM 10-3930-628-12 to install the switch and linkage.

3-54. Adjustments

a. Refer to TM 10-3930-628-12 to adjust the linkage for proper operation.

b. Refer to TM 10-3930-628-12 to adjust the switch and maintain proper pump operation.

CHAPTER 4

REPAIR OF THE ELECTRICAL SYSTEM

Section I. DRIVE MOTOR

4-1. Description

The drive motor is a flange mounted type, D.C. series wound with connections brazed of high conductivity material. A replaceable armature shaft is employed, mounted on a sealed bearing at the commutator end and a double row thrust bearing at the drive end. Dual metal graphite brushes are supported in fixed box type holders to assure proper brush alignment. A metal clip on the top of each brush forms a stop device that prevents commutator scoring.

4-2. Removal

a. Removal. Refer to paragraph 2-6 and figure 4-1 and remove the drive motor (9). The differential carrier (18) and parking brake (11) are removed with the motor (9).

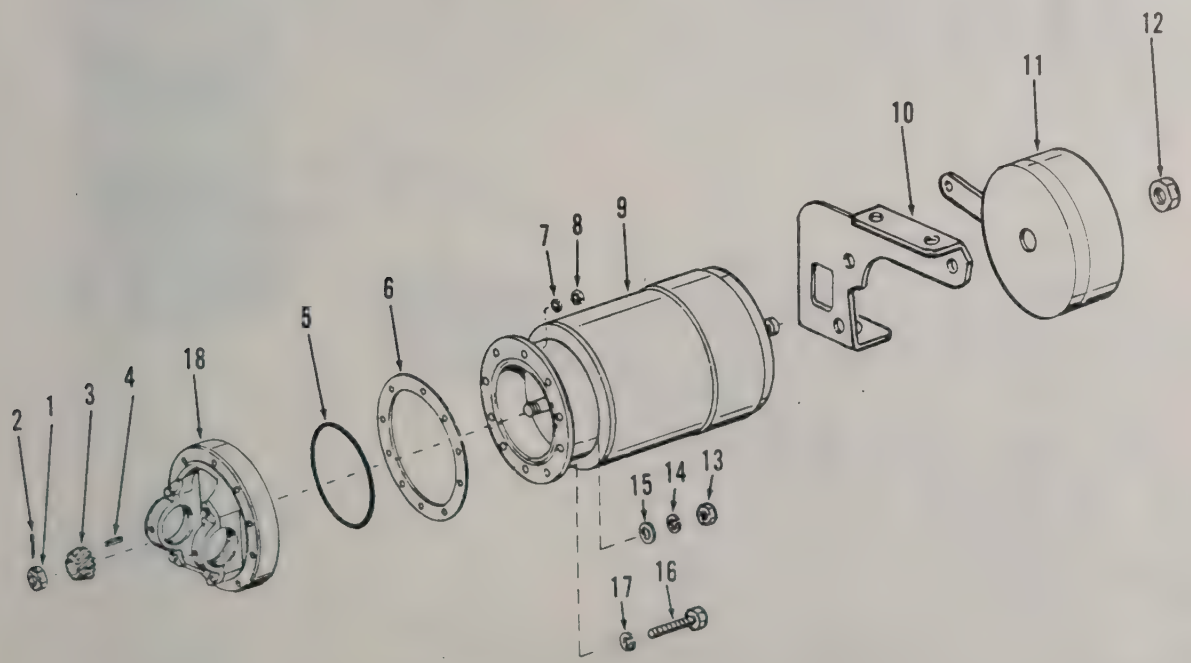
b. Removal of Components. Refer to figure 4-1 and remove parking brake and differential carrier as follows:

(1) Remove four screws (16) and lock washers (17) and remove differential carrier (18) from drive motor (9).

(2) Remove packing (5) and shims (6) from carrier. Tag and count number and thickness of shims for proper installation.

(3) Remove self-locking nut (12) and remove parking brake (11) from drive motor (9).

(4) Remove cotter pin (2) and nut (1) securing pinion (3) to shaft of motor. Remove pinion and key (4) from shaft using a suitable puller if necessary.



ME 3930-628-34/4-1

1. Nut
2. Cotter pin
3. Pinion
4. Key
5. Packing
6. Shim
7. Lock washer
8. Nut
9. Drive motor
10. Motor bracket
11. Parking brake
12. Self-locking nut
13. Nut
14. Lock washer
15. Flat washer
16. Screw
17. Lock washer
18. Differential carrier

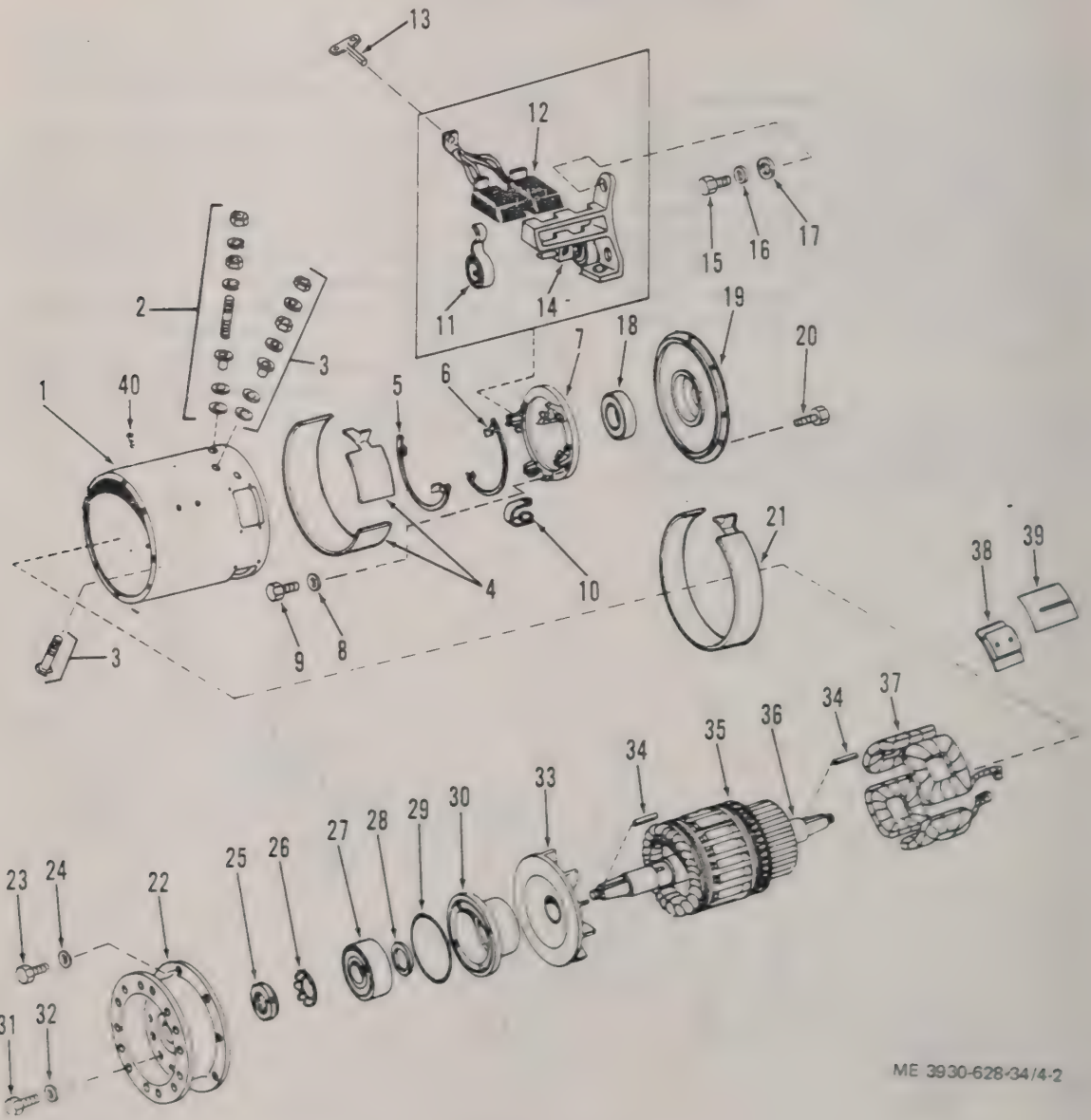
Figure 4-1. Driver motor and components, exploded view.

4-3. Disassembly

a. Clean the exterior of the drive motor with cleaning compound, solvent (Fed. Spec. P-D-680). With parking brake set, remove nut from motor shaft. Using suitable puller, remove parking brake drum.

b. Remove rear band assembly (4, fig. 4-2).

c. Remove the brush shunt retaining screws (13), lift brush retaining springs (11) and withdraw the brushes (12) from the brush holders (14).



1. Yoke
2. Stud assembly
3. Stud assembly
4. Rear band
5. Connector
6. Connector
7. Rocker arm assembly
8. Washer
9. Screw
10. Jumper
11. Spring
12. Brush
13. Screw
14. Brush holder
15. Screw
16. Washer
17. Lock washer
18. Bearing
19. End cover
20. Screw
21. Front band
22. Carrier
23. Screw
24. Lock washer
25. Carrier
26. Lock washer
27. Bearing
28. Oil seal
29. Packing
30. Bearing retainer
31. Screw
32. Washer
33. Fan
34. Key
35. Armature assembly
36. Armature shaft
37. Field coils
38. Pole shoes
39. Shim
40. Screw

Figure 4-2. Drive motor, exploded view.

d. Place the motor on end, with the drive end up.

Caution: **Use extreme care whenever using a gear puller or damage may result to the shaft. An improper puller will flare out the shaft center, damaging threads to the extent of requiring a new armature shaft. It is recommended to use a shaft protector in conjunction with the gear puller.**

e. Remove the screws (23) and lock washers (24) securing the front housing (22) to the field yoke (1).

Caution: **Lift the armature straight up, carefully avoiding damage to the commutator or core.**

f. Attach a chain to the housing and, with a chain hoist, lift the armature and assembled parts. Refer to figure 4-3.

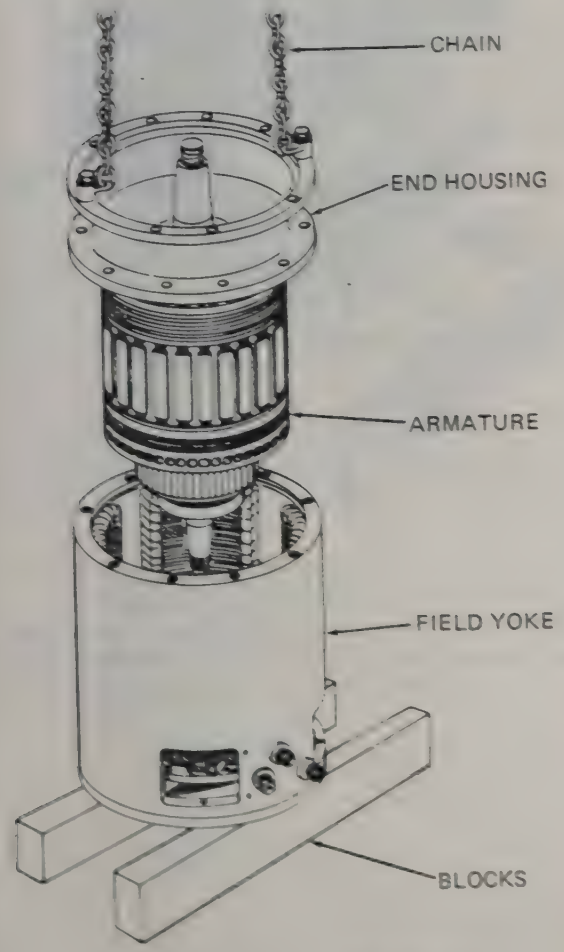


Figure 4-3. Armature removal.

g. Remove the screws (31, fig. 4-2) and lock washers (32) from the housing (22) and remove the housing.

h. Bend the tabs of the retainer lock washer (26) down, then using a spanner wrench, remove the locknut (25).

i. Using a gear puller, remove the bearing retainer (30) from the armature shaft. When the retainer (30) is removed, the bearing (27), oil seal (28) and packing (29) will come off with the retainer. Refer to figure 4-4. Remove the bearing and seal from the retainer.

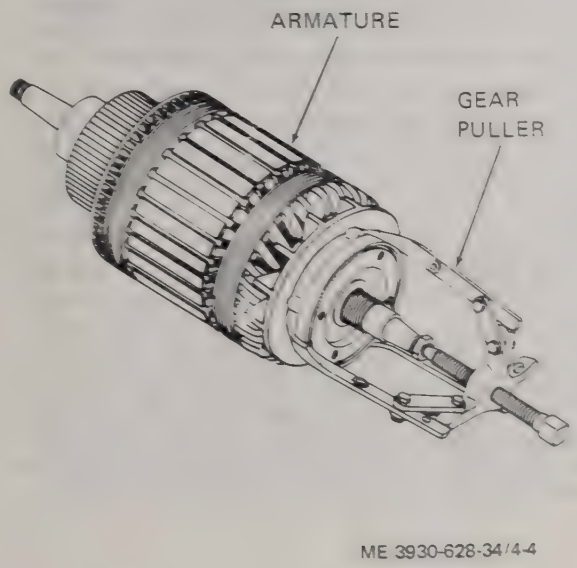


Figure 4-4. Removal of bearing retainer.

Note. The bearing is of the single shield type and can be regreased. All old grease should be removed from the bearing, and then bearing should be thoroughly washed out. Check the bearing for running smoothness and replace it if any roughness is in evidence. Repack the bearing only half full with grease (GMD).

Caution: **Overgreasing bearing will cause overheating, so care must be taken to make certain that the grease cavity is packed only half full. When assembling make certain that the shield faces outward.**

j. Remove and inspect the retainer packing (29, fig. 4-2) and oil seal (28). Replace worn or damaged parts. The oil seal is a light press fit.

k. Remove and replace the commutator end bearing if worn or damaged as it is a sealed type and cannot be lubricated.

l. Remove the fan (33) by applying a steady amount of pressure against the back side of the fan.

The fan (33) is hand pressed on against a key (34), angled up on the backside to prevent the fan from being pressed on too far and causing possible damage to the armature windings.

m. Remove the end cover screws (20) and remove the end cover (19) and the rocker arm assembly (7).

Caution: **Special care should be exercised in removing in order that damage to the insulation on the field coil be avoided.**

n. Field coils (37) should not be removed unless replacement is required. To remove, loosen slotted screws (40) securing the pole shoes (38) to the yoke (1), remove the shims (39) from behind the pole shoes (38), noting quantity and location of the shims and remove the screws (40), pole shoes (38) and coils (37).

4-4. Cleaning and Inspection

a. Clean all parts except the armature and field coils with cleaning compound, solvent (Fed. Spec. P-D-680).

b. Inspect the armature as follows:

(1) Inspect the armature for grounds with a test light by touching one of the test probes to the armature core and the other probe to one of the commutator riser bars (fig. 4-5). Test all commutator bars in this manner. If the test light glows, the armature is grounded and must be replaced.

Note. The armature that is shown in figures 4-5, 4-6 and 4-7 is not to be confused as being that which is used in the drive or pump motors. It is for illustrative purposes only.

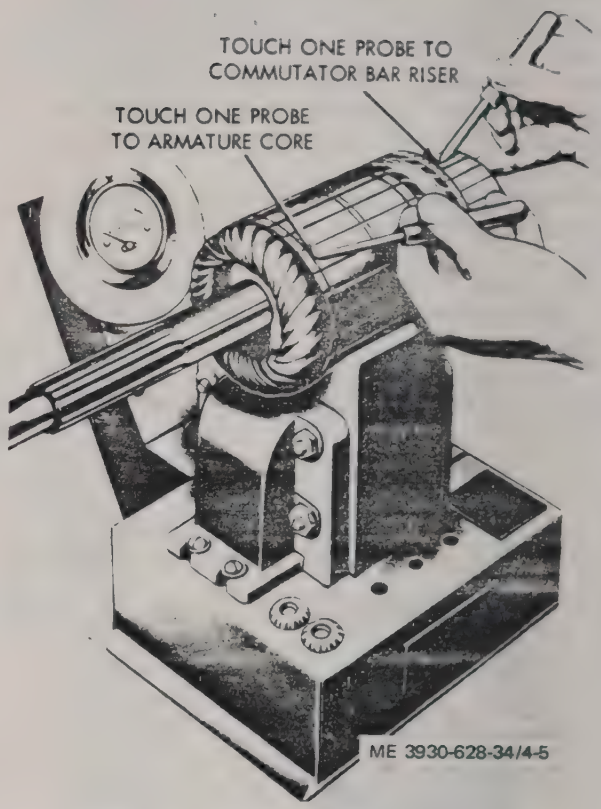


Figure 4-5. Testing the armature for grounds.

(2) Inspect the armature for short circuits using a growler fixture. Place the armature in the growler as shown in figure 4-6. Hold a thin strip of steel, such as a hacksaw blade, about 1 / 32 inch from the armature. While holding the steel strip in this position, rotate the armature slowly in the growler. A short circuit will pull the steel strip tightly against the armature core and cause the strip to vibrate. If a short circuit is found, the armature must be replaced.

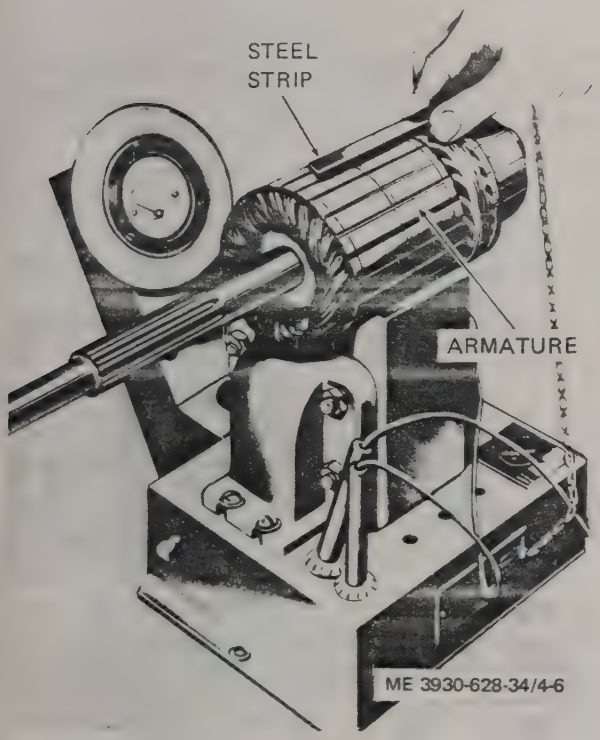


Figure 4-6. Testing the armature for short circuits.

(3) Inspect the armature shaft and commutator for runout using a lathe or "V" blocks and a dial indicator (fig. 4-7). If runout exists, the commutator must be resurfaced until true.

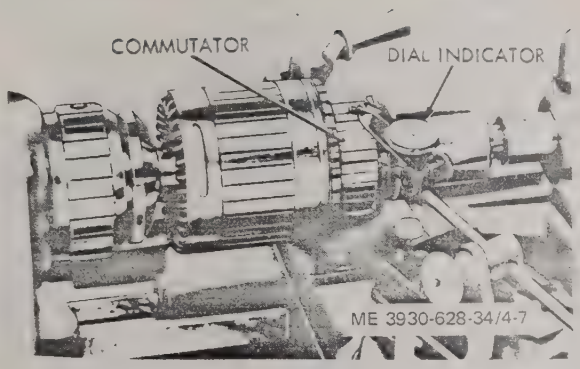


Figure 4-7. Checking commutator runout.

(4) Inspect the commutator contact surface. A satisfactory condition is indicated by an even, highly burnished, dark-copper color. If the contact surface is rough, pitted, scored, burned, or coated with hard carbon or oil, the commutator must be resurfaced. If the mica insulation between the commutator bars is not 0.025 to 0.032 inch below the surface of the bars, it must be undercut to the correct depth.

c. Inspect the field coils for grounds by placing one probe of a test lamp (fig. 4-8) on the field yoke and the other probe on the field terminal. If the lamp lights, the field coils are grounded and must be replaced if the ground cannot be located and repaired.

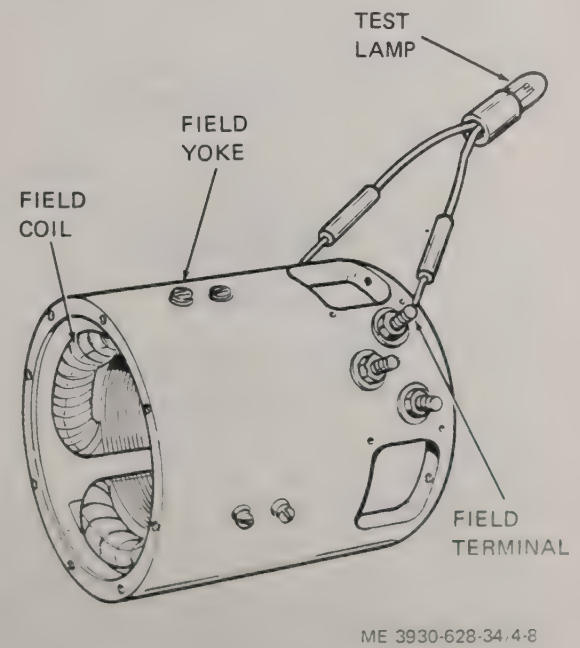


Figure 4-8. Testing field coil for grounds.

d. Inspect the field yoke for cracks and distortion; replace if defective.

e. Inspect the brush holder and brushes as follows:

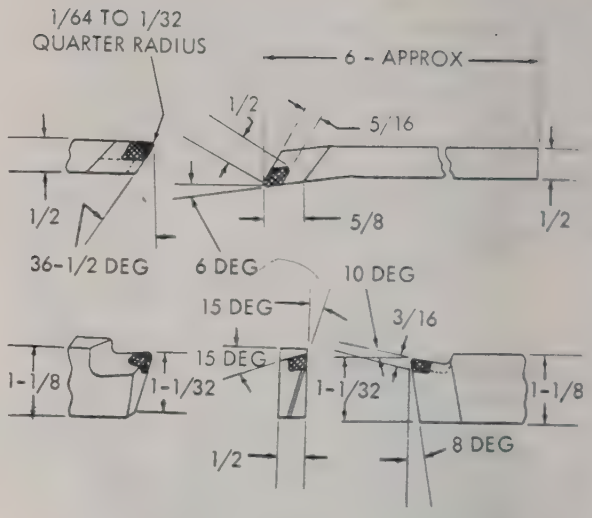
(1) Check the insulation and brush holder for distortion and cracks.

(2) Refer to paragraph 5-6 *b* (1) for brush spring tension limits.

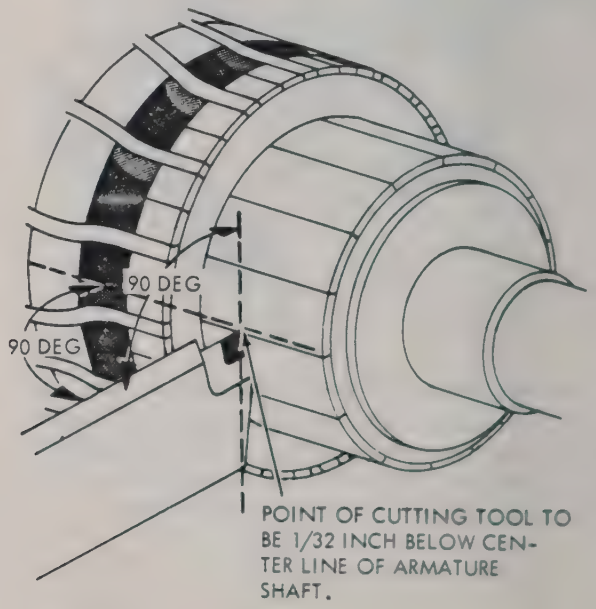
4-5. Repair

a. Repair of the Armature.

(1) *Resurfacing.* Sharpen the lathe cutting tool to the dimensions given in figure 4-9. After grinding, hone the tool with a fine hard stone to ensure a smooth cut during the turning operations. Position the tool with respect to the commutator as shown in figure 4-9. Resurface the commutator at 800 rpm taking only light cuts each time. No more than 0.005 inch should be removed during any one cut and the final cut should not be more than 0.002 inch. After resurfacing, check against specified wear limits and undercut the mica insulation ((2) below) if refinished commutator is within the limits specified. Minimum outside diameter of commutator is 4.375 inches. Replace the armature if it does not conform.



A. Cutting tool sharpening dimensions



B. Proper position of cutting tool

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Figure 4-9. Cutting tool dimensions and positioning.

(2) *Undercutting mica.* After resurfacing the mmutator, undercut the mica to a depth of 0.025 0.032 inch below the commutator surface using a ower-driven undercutting tool (fig. 4-10). If a ower-driven tool is not available, the mica may be ndercut by hand as shown in figure 4-11.

Note. Use care in undercutting. Do not widen the mmutator slots by removing metal from the segments, and not leave a thin edge of mica next to the segments. Figure 4- illustrates good examples of good and bad undercutting.

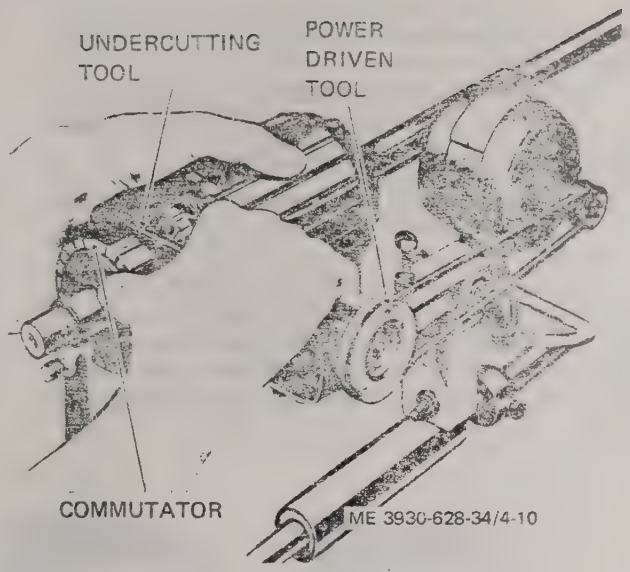


Figure 4-10. Undercutting mica using a power-driven tool.

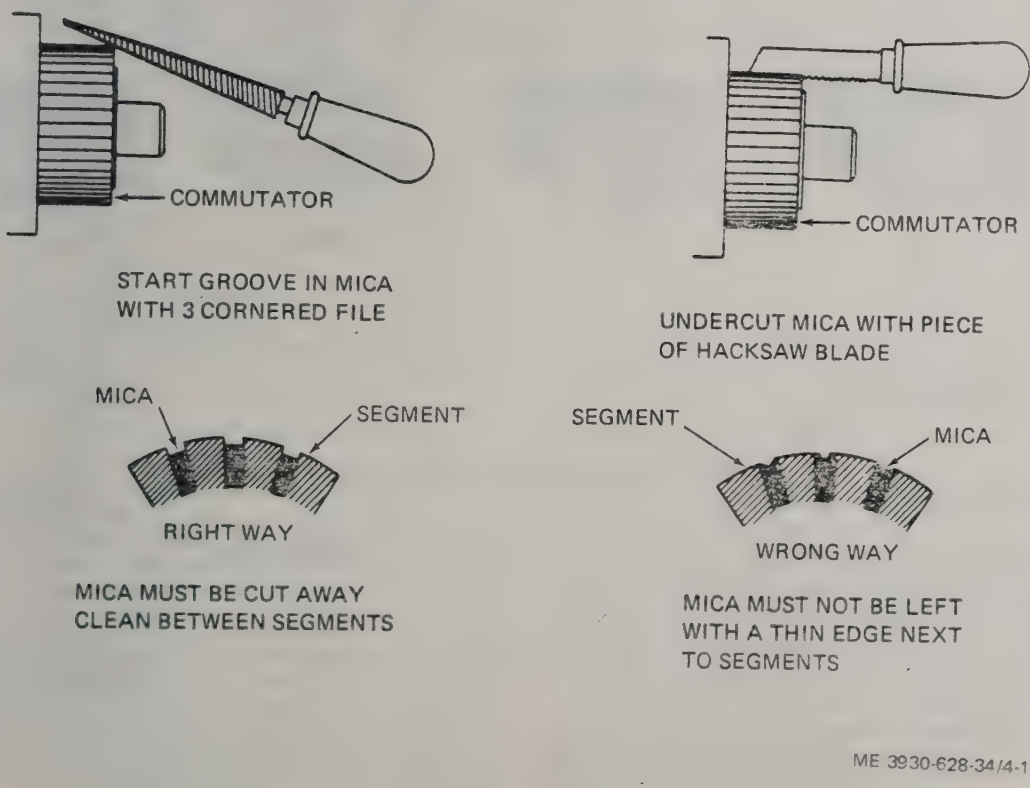


Figure 4-11. Undercutting mica using an alternate hand method.

(3) *Polishing the commutator.* After the mica s been undercut, remove all copper and mica rticles with compressed air. Polish the commutator in a lathe with No. 2/0 sandpaper while the armature is rotating at a speed of 1500 rpm.

b. Repair of the Remaining Parts.

(1) Smooth minor scratches, burrs, and nicks on machined surfaces with fine mill file and crocus cloth dipped in solvent.

(2) Repair any damaged or worn threads.

(3) Replace any defective parts as authorized.

4-6. Replacement of the Brushes

Note. The brushes may be replaced without removing the drive motor from the truck.

a. Removal.

(1) Remove rear band assembly (4, fig. 4-2) from around the field yoke (1, fig. 4-2).

(2) Remove the brush retaining screw; lift the brush retaining springs and withdraw the brushes from the brush holder. Refer to figure 4-12.

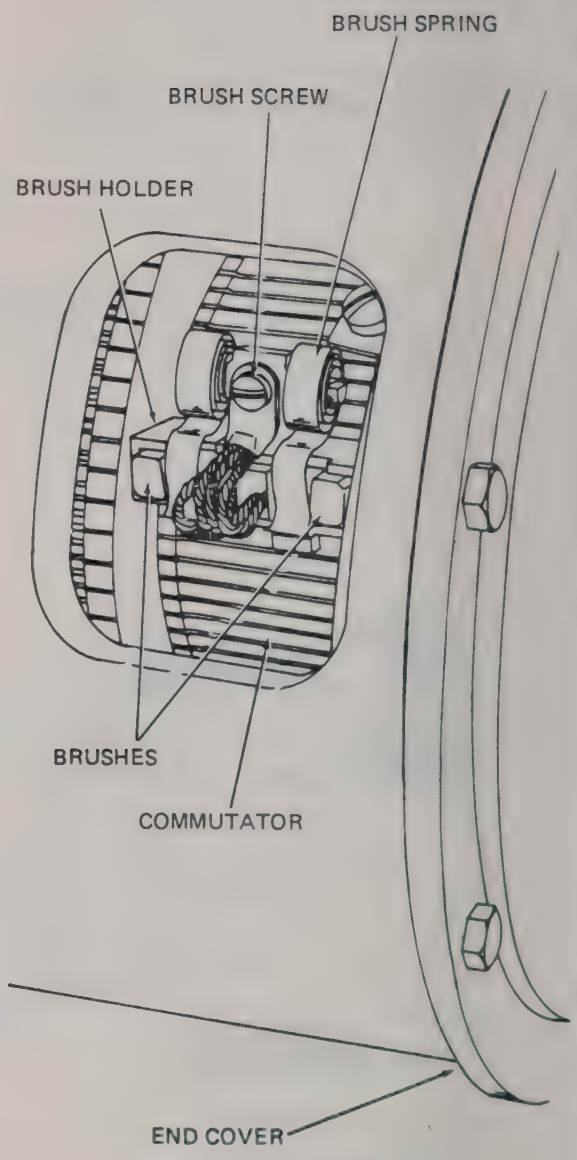


Figure 4-12. Brush location.

b. Inspection and Brush Seating.

(1) Inspect the brushes for excessive wear, racks, or other damage. Minimum height for seable brushes is 0.5625 inch. Replace if ecessary. Inspect the brush springs for cracks, eformation or loss of tension. The correct spring ension is 40 ounces for the drive motor and 25 unces for the pump motor.

(2) Seating of the brushes on the commutator s extremely important. Before the new brushes are nstalled, they should be contoured on a sanding rum with the same diameter as the commutator. Iold the brushes to the sanding drum to obtain the ame radius and brush angle on the contact face as as on the old brushes. Final seating can be obtained with a fine mesh seating stone while the commutator is turning.

c. Installation. Refer to figure 4-12 and install brushes as follows:

(1) Lift the brush retaining springs and insert the brushes; install the brush retaining screw. Brush surface must seat flat on commutator.

(2) Slowly rotate the armature by hand for several revolutions to properly seat the brushes.

(3) Lift the brush springs and raise each brush and inspect the seat contour to determine whether or not the sanding operation is satisfactory. Refer to figure 4-13 for examples of satisfactory brush seats. Repeat step *b* (2) above if necessary.

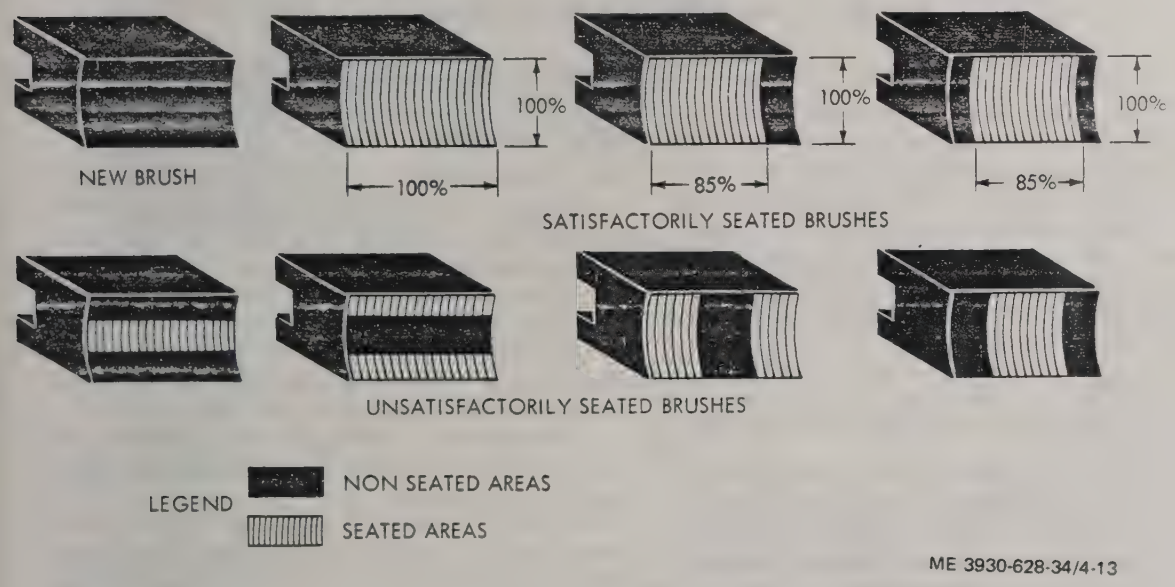


Figure 4-13. Examples of satisfactory and unsatisfactory brush seats.

4-7. Assembly

Caution: **Care should be taken to avoid damage to the insulation on the field coils.**

a. Install the field coils (37, fig. 4-2) and pole hoes (38) in the yoke (1). Install the shims (39) etween the pole shoes (38) and the yoke (1), being ertain that the quantity of shims and the location f the shims is the same as they were prior to emoval. Secure in place with screws (40).

b. Install the brush holders (14) on the rocker rm (7) with the screws (15), washers (17) and ock washers (16). Install the springs (11) on the rush holders (14).

Note. The brushes shall not be installed at this time.

c. Secure the rocker arm assembly (7) to the end over (19) with screws (9), washers (8). Install the end cover (19) and rocker arm (7) assemblies on the yoke (1) with screws (20).

d. Install key (34) in shaft. Carefully install the fan (33) on the armature shaft and key, with fan angle towards armature winding. The exertion of hand pressure on the fan blade is all that is necessary to force it onto the armature shaft.

e. Install the commutator end bearing (18) onto the armature shaft. Install new packing (29) and the oil seal (28) into the bearing retainer (30). The oil seal is a light press fit.

f. Install the bearing retainer (30) and bearing (27) on the armature shaft; secure in place with the lock washer (26) and lock nut (25).

g. Install the housing (22) and secure it to the bearing retainer (30) with screws (31) and washers (32).

h. Place the yoke assembly (1) on end and carefully install the armature assembly into the yoke. Refer to figure 4-3. Secure in place with screws (23) and washers (24).

i. Install the brushes (12) in the brush holders (14) and install the shunt retaining screws (13). Replace the rear band assembly (4) on the yoke (1).

j. Install the parking brake assembly (11, fig. 4-1) on the drive motor and secure in place with self-locking nut (12).

4-8. Installation

a. Install key (4, fig. 4-1) and pinion (3) on motor shaft. Secure pinion on shaft with nut (1).

b. Torque tighten nut to 75-85 foot-pounds and secure nut with cotter pin (2).

c. Install packing (5) in groove in motor flange. Install shims (6) between motor and differential carrier (18).

d. Secure motor to differential carrier with screws (16) and lock washers (17).

e. Refer to paragraph 2-6 and install drive motor on truck.

f. Refer to TM 10-3930-628-12 and install thermal relay on motor.

Section II. HYDRAULIC PUMP MOTOR

4-9. Description

The hydraulic pump motor is a ventilated, sealed ball bearing type motor. It is series wound for uniform motor speed, maximum pump life and smooth hydraulic control. The pump motor is supported on each end by mounting brackets which are secured to the truck frame. The motor is activated through microswitches whenever the ignition switch is in the "ON" position and the lift or tilt handles are operated.

4-10. Removal

a. Refer to paragraph 2-7 to remove pump and motor from truck.

b. The motor can be removed from truck without disturbing pump and hydraulic system as follows:

(1) Remove floor and toe plates and remove drip pan. Raise truck sufficiently to allow room to work beneath truck. Block truck to hold in position.

(2) Remove two screws and lock washers securing hydraulic pump to motor.

(3) Separate pump from motor and move pump to side, leaving hoses attached to pump.

(4) Tag and disconnect cables from motor. Disconnect and remove thermal relay from motor.

(5) Remove screws securing motor mounting brackets to truck frame. Remove motor with attached brackets.

4-11. Disassembly

a. Remove the screws (1 and 25, fig. 4-16) securing the mounting brackets (2 and 26). Remove the brackets from motor.

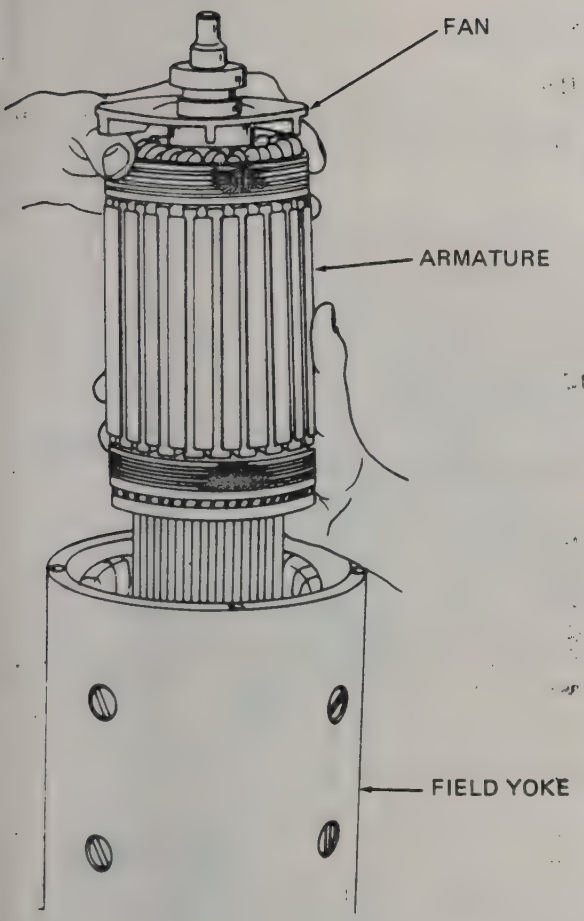
b. Remove both the front (22) and rear (6) cover assemblies from the motor.

c. Remove the brush shunt retaining screw (27), lift the brush retaining springs (30) and withdraw the brushes (31) from the brush holder (29).

d. Remove the screws (3) and washers (4) securing the rear housing (5) to the field yoke (14); remove the housing.

Caution: **Exercise extreme care when removing the armature to prevent damaging core, commutator, or pole faces. Make certain that the armature is pulled straight up out of the field yoke.**

e. Carefully remove the armature assembly as shown in figure 4-14. Remove the armature complete with bearings.

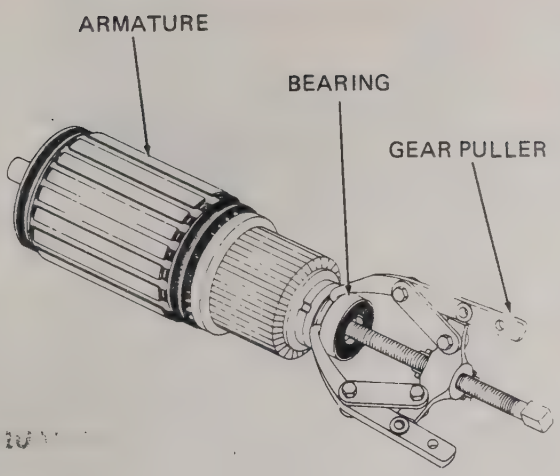


ME 3930-628-34/4-14

Figure 4-14. Armature removal.

Caution: **Use extreme care when using a gear puller or the center of the shaft could be damaged. It is recommended that a shaft protector be used in conjunction with the gear puller.**

f. If the bearings (7 and 12, fig. 4-16) are worn or damaged, remove the bearings from the armature shaft with a suitable puller as shown in figure 4-15.



ME 3930-628-34/4-15

Figure 4-15. Bearing removal.

g. The fan (9) is secured to the armature shaft with a Woodruff key (10) and a snap ring (8). Remove the snap ring, fan and key.

h. Remove the end cover (19) and rocker arm assembly (17) by removing screw (24) and washer (23).

Note. Disassemble the rocker arm assembly only as far as necessary to replace worn or damaged parts.

i. Refer to figure 4-16 and disassemble the rocker arm assembly as follows:

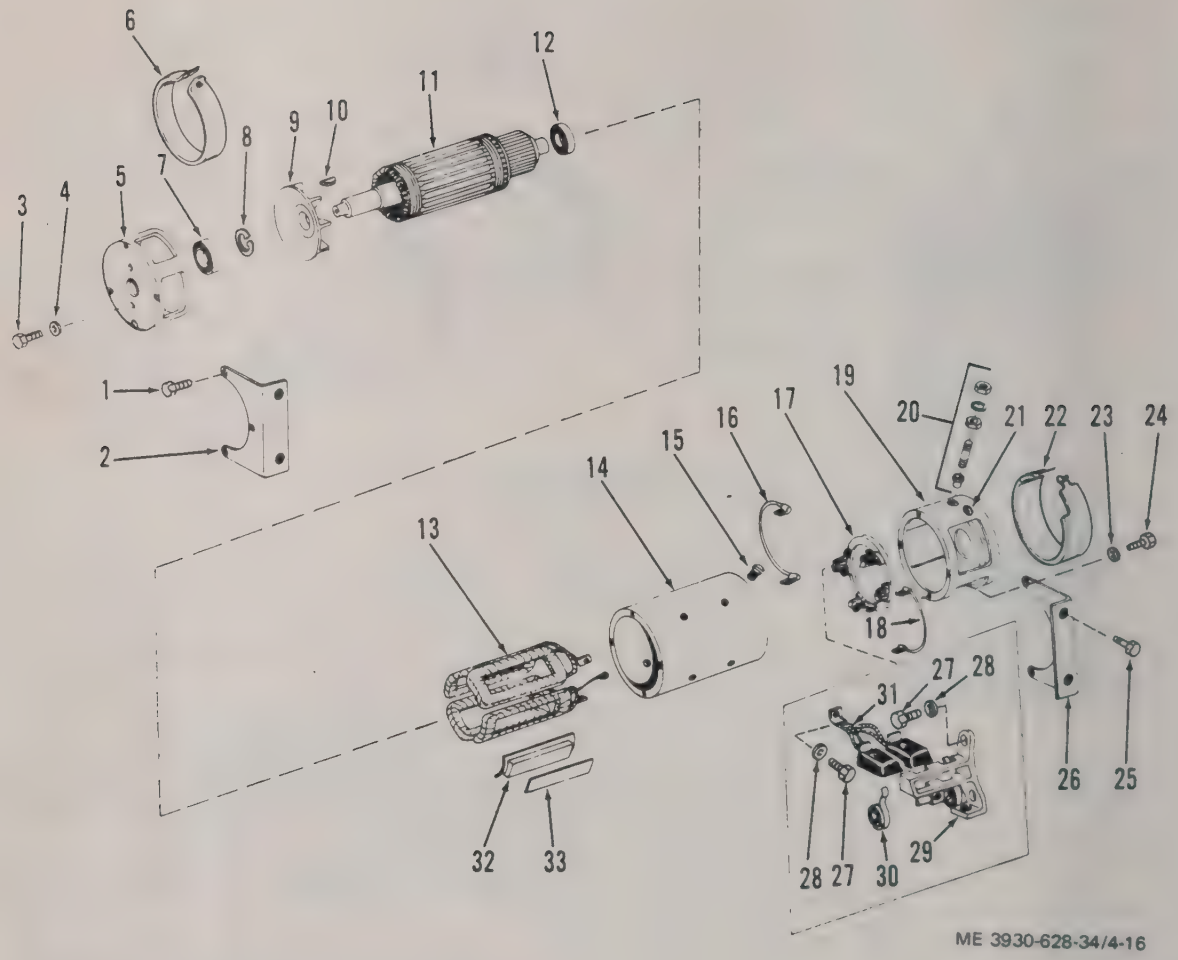
(1) Remove connectors (16 and 18) from rocker arm assembly.

(2) Remove screws (27) and washers (28) securing the brush holder (29) to the rocker arm (17).

(3) Remove the brush springs (30).

j. To remove the field coils, remove the pole retaining screws (15) and note the quantity of shims (33) behind each pole shoe.

k. Remove the pole shoe (32) from each field coil; remove the coil assembly.



1. Screw
2. Bracket
3. Socket head screw
4. Washer
5. Rear housing
6. Rear cover
7. Bearing
8. Snap ring
9. Fan
10. Woodruff key
11. Armature
12. Bearing
13. Field coils
14. Field yoke
15. Screw
16. Connector
17. Rocker arm
18. Connector
19. Front housing
20. Field stud assembly
21. Armature stud assembly
22. Front cover
23. Washer
24. Socket head screw
25. Screw
26. Bracket
27. Screw
28. Washer
29. Brush holder
30. Brush spring
31. Brush
32. Pole shoe
33. Shim

Figure 4-16. Hydraulic pump motor, exploded view.

4-12. Cleaning and Inspection

Clean and inspect the hydraulic pump motor as outlined in paragraph 4-4.

4-13. Repair

Repair the hydraulic pump motor as outlined in paragraph 4-5.

4-14. Replacement of the Brushes

Replace the brushes in the pump motor as outlined in paragraph 4-6.

4-15. Assembly

a. Install the pole shoe (32, fig. 4-16) and field coils (13) into the field yoke (14). Install the original quantity of shims (33) between the pole shoe (32) and the yoke (14). Secure in place with screws (15).

b. Assemble the rocker arm (17) as follows:

(1) Install the brush springs (30) on the brush holder (29).

(2) Secure the brush holder (29) to the rocker arm (17) with screw (27) and washer (28).

(3) Install the connectors (16 and 18).

c. Place the rocker arm assembly in the end cover (19). Mount the rocker arm and cover to the field yoke with screws (24) and washers (23).

d. Secure the fan (9) to the armature shaft with a snap ring (8) and Woodruff key (10).

e. Press new bearings (7 and 12) onto the armature shaft.

f. Carefully install the armature in the field yoke assembly.

g. Secure the rear housing (5) to the field yoke (14) with screws (3) and washers (4).

h. Insert the brushes (31) into the brush holder (29) by lifting the brush retaining springs (30) and sliding brushes into the brush holder. Brush surfaces seat flat on commutator. Install the brush shunt retaining screw (27).

i. Install both the front (22) and rear (6) cover assemblies on the motor.

j. Secure the mounting brackets (2 and 26) to the pump motor with screws (1 and 25).

4-16. Installation

a. Attach a chain hoist to the mast assembly and raise and block the truck to a height which will allow the hydraulic pump motor to be slid under the truck for installation.

b. Place motor on a floor jack. Carefully raise the motor into position and install the screws securing the mounting brackets to the truck frame.

c. Connect all electrical cables to the motor that were removed. Install pump on motor and secure with two screws. Install thermal relay on motor.

d. Install the floor and toe plates, and the drip pan.

Section III. DRIVE CONTROL

4-17. Description

This section presents a detailed discussion and description of the TYPE 702 MK II SYSTEM of pulse width modulation for drive control of electric fork lift trucks. The 702 MK II SYSTEM is made up of modular sections. If trouble occurs within a module, it can be traced quite easily, and the module can be repaired or replaced, resulting in a minimum downtime on the equipment. Printed circuitry is used where feasible. Heavy duty, industrial type, epoxy glass-laminate is used for the printed circuit boards. The complete circuit board and components are encased in a plastic film for protection from moisture and dirt. Contactor contacts are made of silver alloy to reduce corrosion and prolong contact life. Continual current and battery voltage monitoring circuits are incorporated to protect the truck from abuse, and to extend component service life. Pulse width modulation as used in the 702 MK II SYSTEM is a method of DC motor control. Control of speed and power is achieved by applying the full source voltage directly to the motor load in regular recurring pulses (120 per second). These pulses, part of an "on-off" switching cycle, are varied in width by positioning the speed potentiometer. The motor responds to a current which is the average of the "on" and "off" times within each cycle.

Caution: **Disconnect batteries before attempting any repair of the electrical system.**

4-18. Power Switch

a. Description. The power switch assembly (fig. 4-19), attached to a swing-out door located on the left side of the truck frame, consists of germanium power transistors, drive transistors and related circuitry. The transistors are mounted on heat sinks that carry off the small amount of heat generated while the transistors are switching. The power switch circuitry (with the exception of the diode bias block mounted on the front of the assembly and the ceramic resistors connection power transistor heat sinks) is mounted on heavy duty industrial type epoxy, glass-laminate printed circuit boards. Each printed circuit board contains two parallel connected power transistors, two parallel connected driver transistors, and their related circuitry to form a module. These power switch modules are then parallel connected to each other by means of bus bars. This truck is equipped with eight modules.

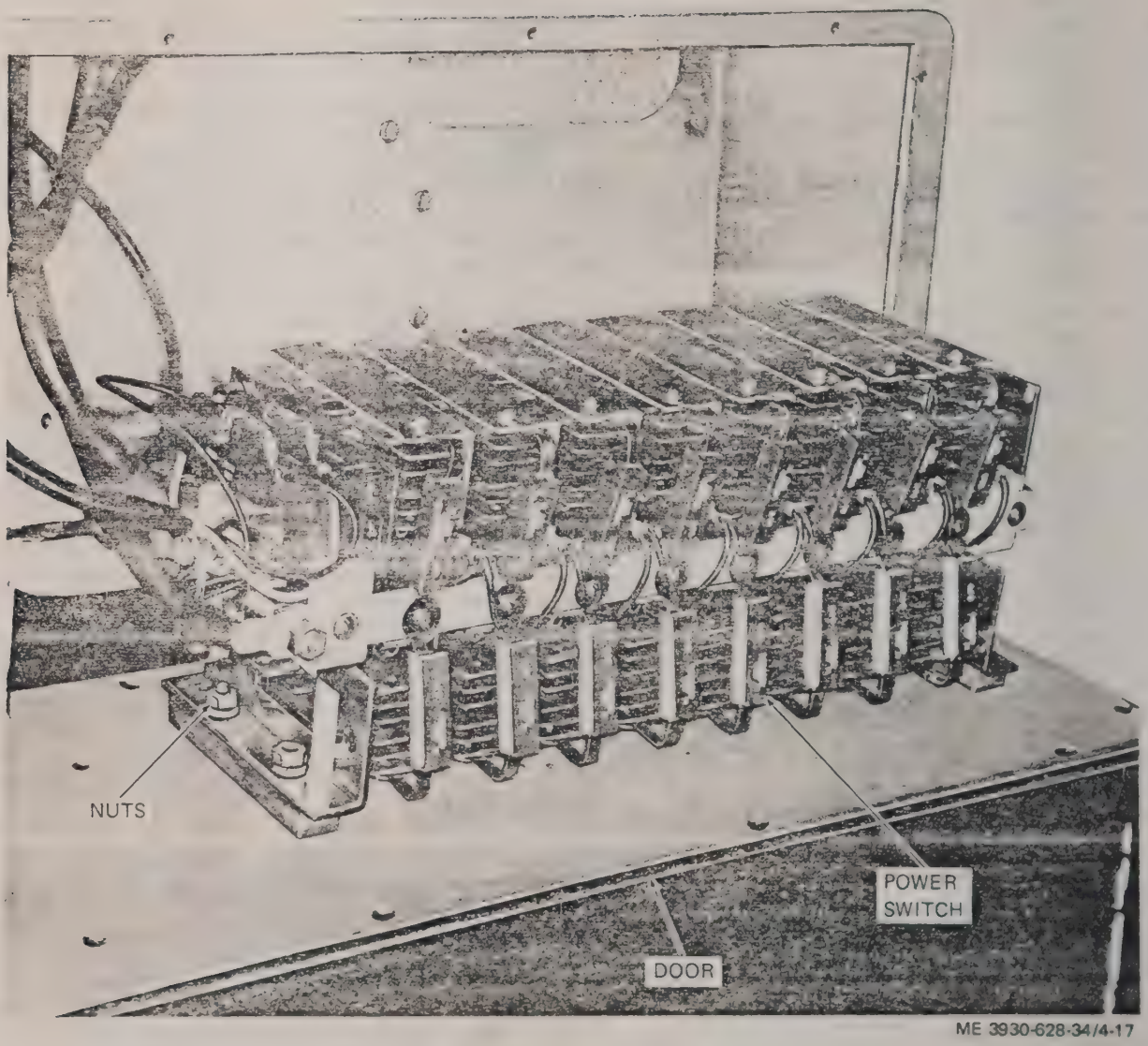


Figure 4-17. Power switch removal.

b. Removal. Refer to figure 4-17 and remove power switch as follows:

(1) Remove the screws holding the door closed; pull out on the door and swing open.

(2) Remove and tag all electrical leads.

(3) Remove the screws, washers and nuts securing the power switch to the door; remove the power switch assembly.

c. Resistance Test. Refer to figure 4-21 to test resistance in power switch.

(1) A complete power switch assembly can be checked for collector to emitter shorts with a volt-ohmmeter. Set VOM on RX1 scale, connect positive lead to A1 and negative lead to B2+ of power switch assembly. A good power switch will read approximately 70 ohms. Zero ohms indicates one or more shorted transistors within the power switch assembly.

(2) To find shorted transistors, remove screw (2) attaching resistor (1) to power transistor heat sink (6), in each module, one at a time. When resistor associated with shorted transistor is removed from heat sink, resistance reading on VOM will return to normal. Touch each disconnected resistor (one at a time) to its respective heat sink. Any momentary connection which causes a zero ohm reading on VOM indicates a shorted power transistor in that module.

(3) An open between collector and emitter of power transistor can be located by disassembly of

power switch modules to allow individual transistor checking. The following ohmmeter test of power and drive transistors will determine an open or shorted condition. Leakage must be checked with a transistor checker. Refer to table 4-1. Figure 4-20 illustrates transistor and diode characteristics and test points.

Table 4-1. Transistor and Diode Resistance Checks

VOM CONNECTIONS (RX1 SCALE)		
Positive red	*Negative (black)*	*Readings*
	TRANSISTORS	
Collector	Emitter	30 ohms or higher
Emitter	Collector	30 ohms or higher
Emitter	Base	12 ohms or less
Base	Emitter	Infinity
Collector	Base	12 ohms or less
Base	Collector	Infinity
	DIODES	
Anode	Cathode	X (see NOTE)
Cathode	Anode	10X (see NOTE)

Note: There must be approximately a 10 to 1 ratio between these readings to ensure that a diode is good.

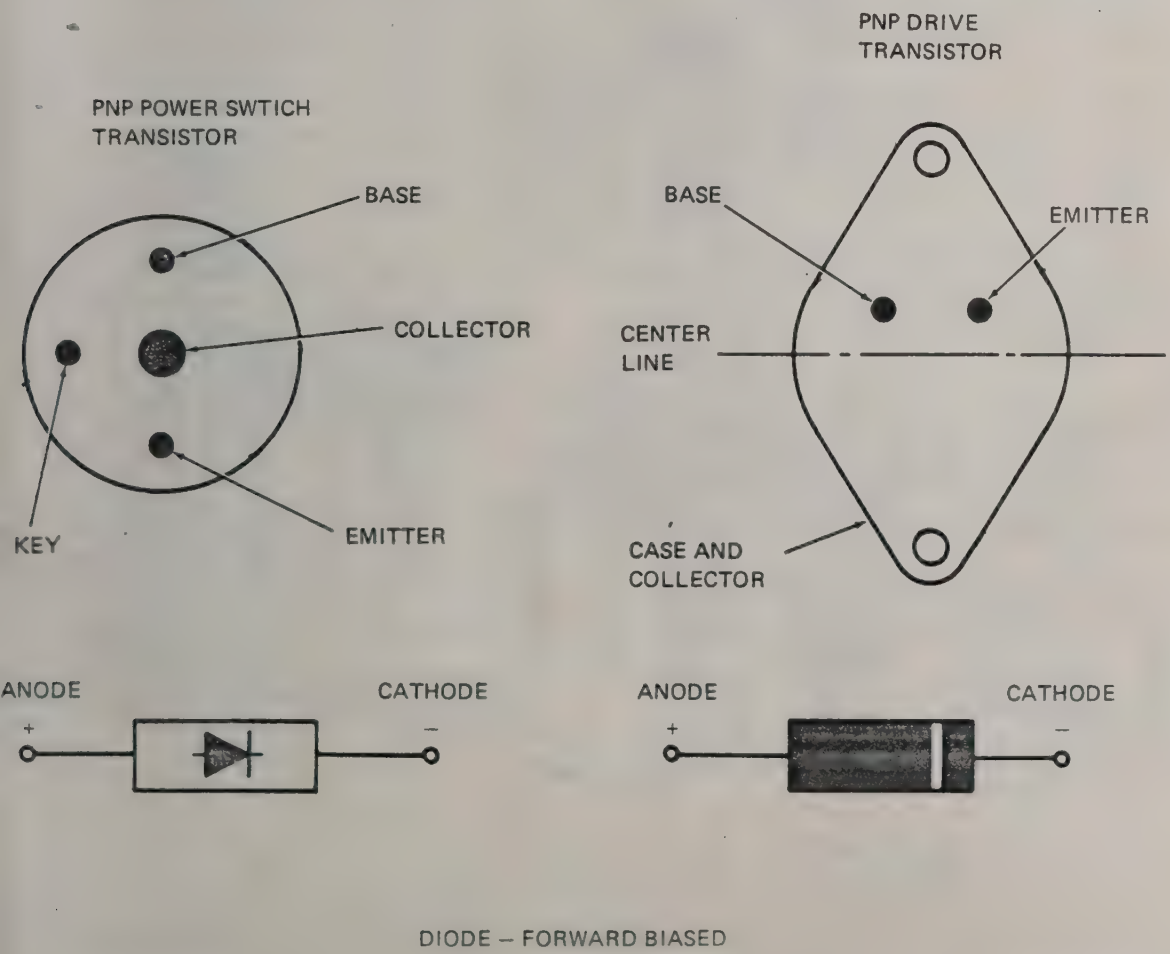


Figure 4-18. Transistors and diodes.

d. Disassembly. Refer to figure 4-19 and disassemble the power switch as follows:

(1) Disconnect push-on leads (15 and 45) from top and bottom of the module. Remove screw (22), lock washer (23), and flat washer (24) connecting the emitter leads to the emitter bus bar (21).

(2) Remove the screw (2), lock washer (3) and flat washer (4) connecting each resistor (1) to the collector bus bar (40).

(3) Remove the nylon screw (44), flat washer (32), lock washer (31 and 34), nut (30) and insulator (33) connecting each end of the collector bus bar (40) to the power switch assembly. Slide the collector bus bar out of the power switch assembly.

(4) Remove screw (41), washer (42) and nut (43) to remove the fuse block (37).

(5) Remove the diode bias block (25) by removing screw (28), washer (26) and lock washer (27).

(6) Loosen the nuts (19) at both ends of the insulated frame support bars (13) sufficiently to allow removal of the desired power switch modules (6). Refer to paragraph 4-17 for repair of switch modules.

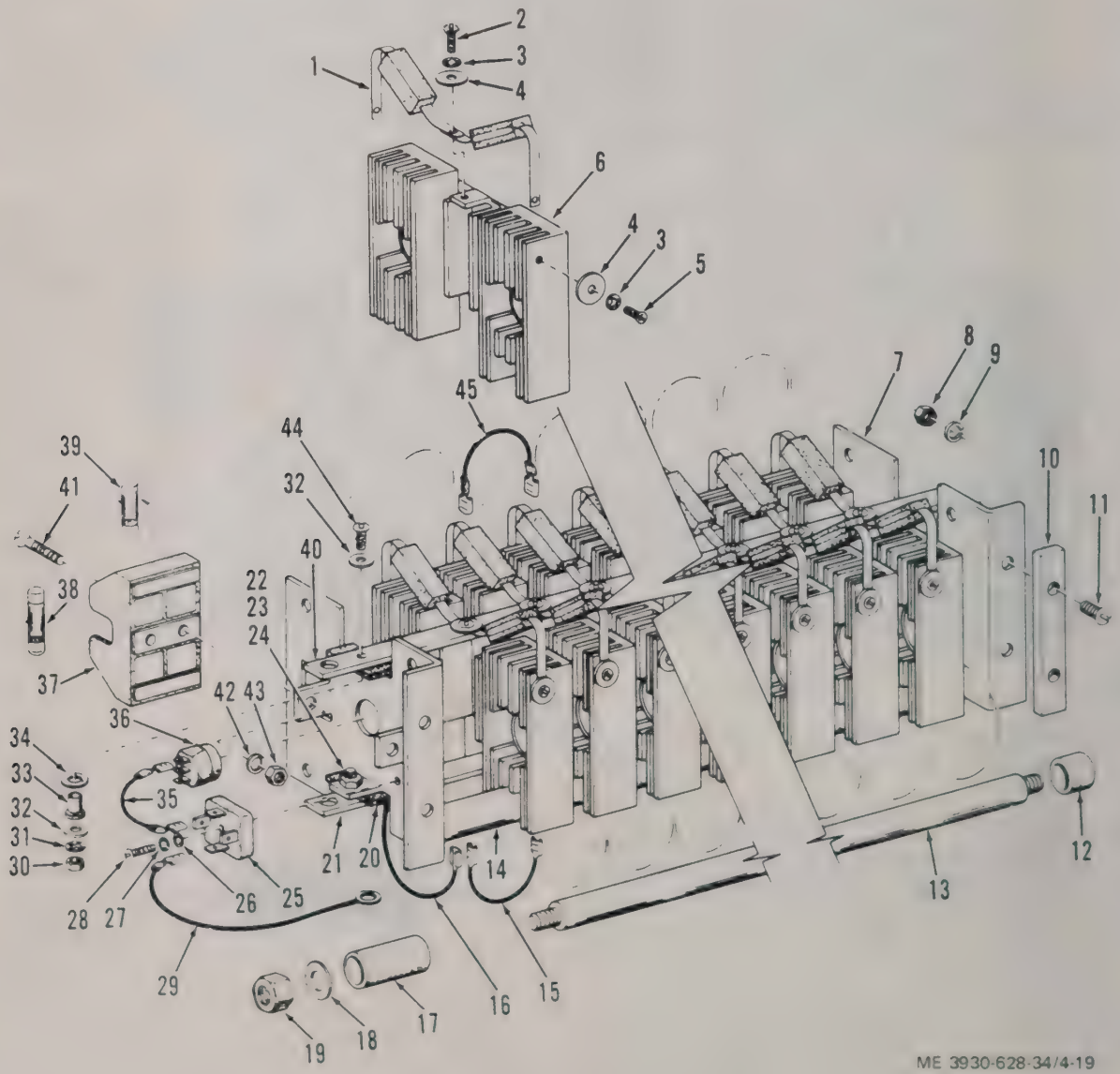


Figure 4-19. Power switch assembly.

KEY to fig. 4-19:

1. Resistor
2. Screw
3. Lock washer
4. Washer
5. Screw
6. Module
7. End plate
8. Nut
9. Lock washer
10. Insulator
11. Screw
12. Spacer
13. Rod
14. Spacer
15. Lead
16. Lead
17. Spacer
18. Washer
19. Nut
20. Insulator
21. Bus bar
22. Screw
23. Lock washer
24. Washer
25. Diode bias block
26. Washer
27. Lock washer
28. Screw
29. Lead
30. Nut
31. Lock washer
32. Washer
33. Bushing
34. Washer
35. Lead
36. Terminal
37. Fuse block
38. Fuse, 10A
39. Fuse, 5A
40. Bus bar
41. Screw
42. Lock washer
43. Nut
44. Screw
45. Lead

e. Inspection. Visually inspect each of the power tch modules for physical damage to the heat ks, printed circuit board and components. place components as authorized.

f. Assembly. Refer to figure 4-19 and assemble power switch as follows:

Note. Silicone grease must be applied between the sistors and their heat sinks when replacing any defective sistor.

(1) Assemble the power switch modules on the frame support bars (13) between the end plates (7).

(2) Mount the fuse block (37) on the power switch with screw (41), washer (42) and nut (43).

(3) Mount the diode bias block (25) on the end plate (7) with screw (28) and washers (26 and 27).

(4) Position the collector bus bar (40) under the resistors (1) and on top of the module (6). Secure the bus bar (40) to the end plate (7) with screws (44), lock washers (31 and 34), flat washers (32), insulators (33) and nuts (30).

(5) Secure the resistor (1) in place with screws (2 and 5) and lock washers (3) and flat washers (4).

(6) Connect the jumper leads (15 and 45) and double check wiring for any possible errors.

g. Installation.

(1) Mount each end plate of the power switch assembly on the swing out door and secure with flat head screws, washers, and nuts as shown in figure 4-17.

(2) Attach all electrical leads to their proper terminals. Double check wiring for possible errors.

(3) Close the swing out door and secure in place with screws.

4-19. Power Switch Modules

a. Description. The power switch consists of two drive transistors and two power transistors. Each pair of transistors is connected in parallel to form a single module.

b. Removal. Refer to paragraph 4-18 *d* (6) for removal of the module from the power switch.

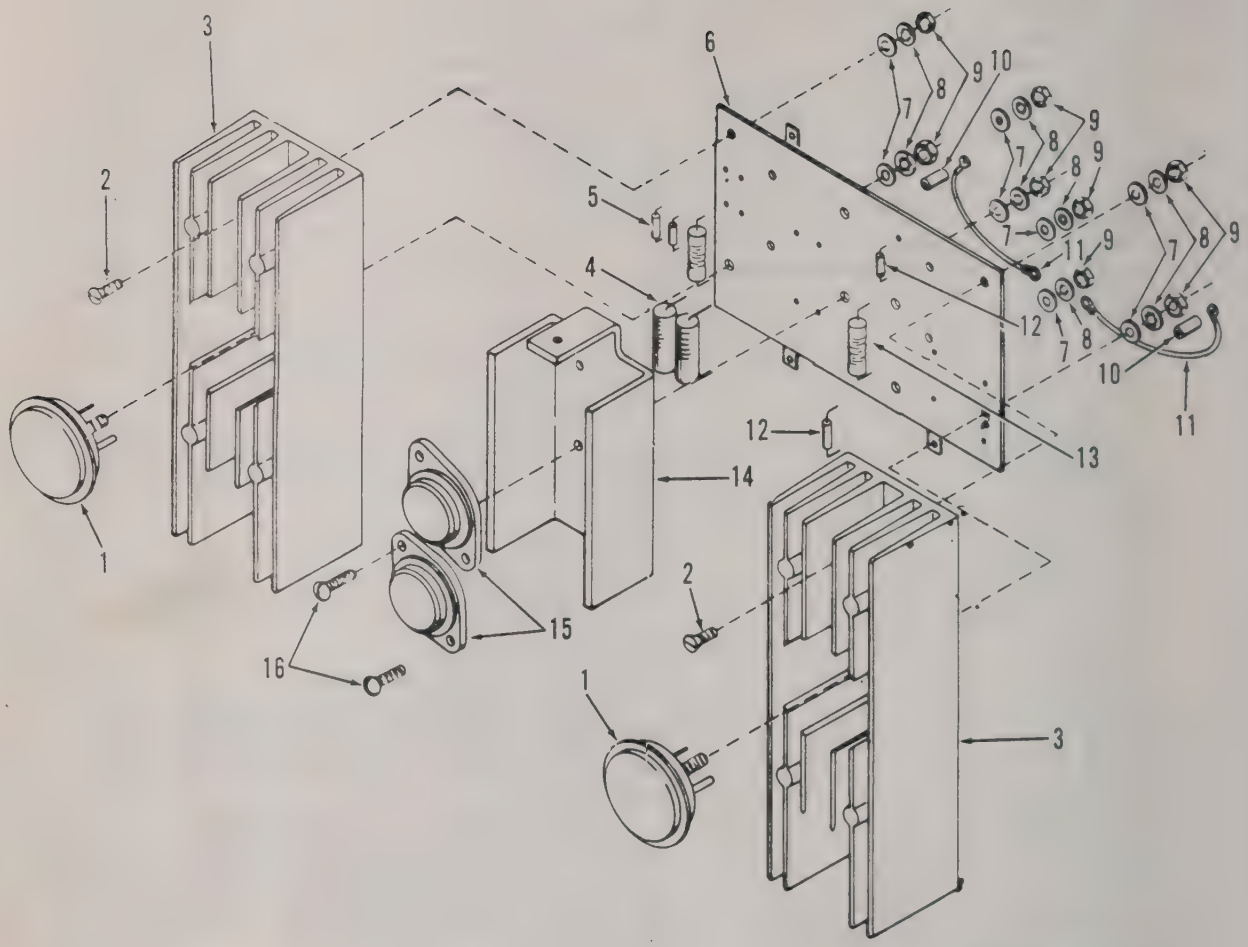
c. Testing. Using a VOM set on the RX1 scale and table 4-1, the condition of the transistors may be determined.

d. Disassembly.

(1) Refer to figure 4-20 and remove nuts (9), lock washers (8), washers (7), and screws (16). Remove the power transistors (1) and the drive transistors (15).

(2) Remove screws (2) and heat sinks (3 and 14).

(3) Using a low wattage soldering iron (30 to 50 watts) remove resistors (4, 5, 12 and 13) as necessary.



1. Power transistor
2. Screw
3. Heat sink
4. Resistor
5. Resistor
6. Circuit board
7. Washer
8. Lock washer
9. Nut
10. Spacer
11. Lead
12. Resistor
13. Resistor
14. Heat sink
15. Drive transistor
16. Screw

Figure 4-20. Power switch module.

c. Inspection.

(1) Inspect the heat sinks for bent or damaged fins which would affect the amount of heat dissipated by the heat sink.

(2) Inspect the printed circuit board for cracks, warpage, broken electrical path or other damage which could affect the operation of the module.

(3) Replace defective parts as authorized.

d. Assembly. Refer to figure 4-20 and assemble the module as follows:

Note. When reinstalling the transistors on the heat sinks, make sure there is a sufficient amount of silicone grease (Dow Corning 340 silicone heat sink compound) between the transistors and their heat sinks.

(1) Secure the heat sinks (3 and 14) to the circuit board (6) with screws (2), washers (7), lock washers (8) and nuts (9).

(2) Install any resistors that were removed.

(3) Install the transistors (1 and 15) in the respective heat sinks (3 and 14). Secure in place with screws (16), washers (7), lock washers (8) and nuts (9).

g. Installation. Refer to paragraph 4-18 *f*(1) for installation of the power switch modules.

4-20. Diode and Capacitor Assembly

a. Description. A current is created by the collapsing magnetic field of the motor when the power transistors are turned off. The free wheeling diode provides a path for this current to flow back through the motor in the proper direction. This current flows during the "OFF" time of the 120 time per second pulse, allowing the average motor current to be higher than the average battery current (fig. 4-21).

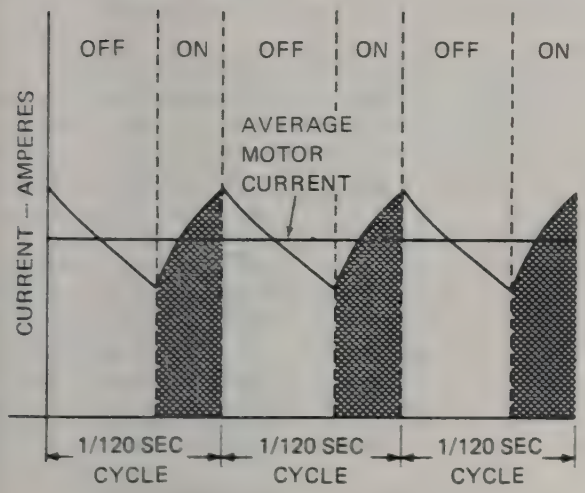


Figure 4-21. Average current.

The armature diode is connected across the armature. It allows rapid direction reversal, prevents the motor from acting as a series generator, and holds the voltage across the armature to a safe level. Operation of this diode is necessary only during rapid reversals. The path of the operation shaping network absorbs the surge of current during the short period of time between the opening of the power switch and the closing of the free-wheeling diode. This current is discharged through the power transistors during their next "on" time.

b. Removal.

(1) The capacitor and diode assembly is mounted under the toe plate, within the frame, above the left front wheel.

(2) Remove and tag all electrical leads.

(3) Remove the screw (fig. 4-22), nuts and washers securing the assembly to the frame. Remove capacitor and diode assembly.

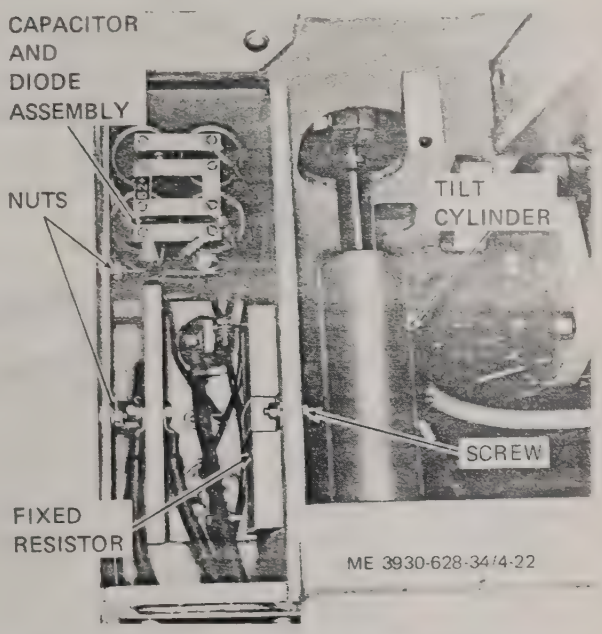


Figure 4-22. Capacitor and diode assembly, installed view.

c. Disassembly. Refer to figure 4-23 and disassemble the capacitor and diode assembly as follows:

(1) Remove and tag electrical leads (1 and 2) from capacitors (3 and 4). Loosen adjustable metal strap (5) sufficiently to allow removal.

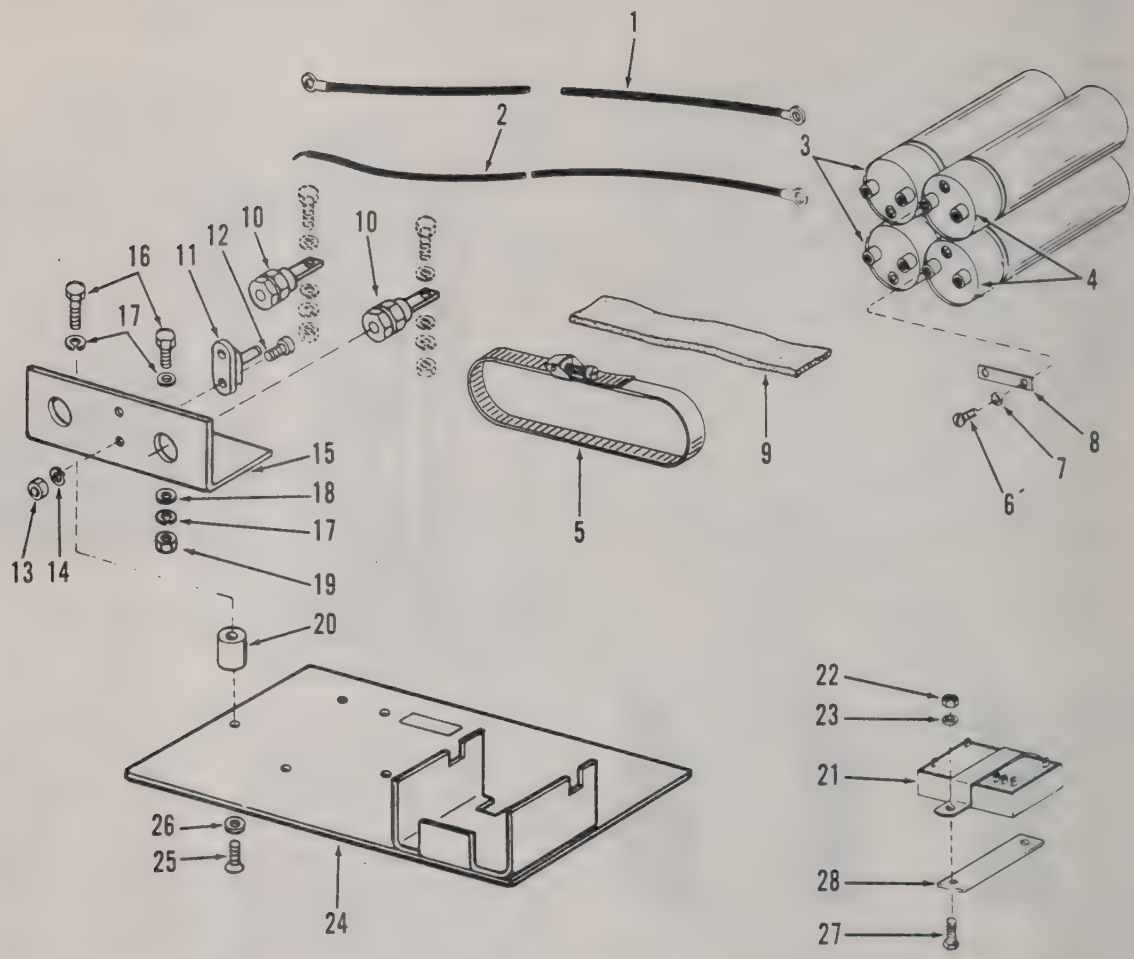
(2) Remove screws (6), lock washers (7) and links (8). Remove weatherstrip (9).

(3) Remove and tag electrical connections to diodes (10 and 11). Remove screw (12), nut (13) and lock washer (14) to remove diode (11) from support (15).

(4) Remove nuts securing diodes (10) to support. Do not remove support (15) unless replacement is necessary.

(5) Disconnect electrical connections to resistor (21). Remove nuts (22), lock washers (23) and screws (27) from mounting strap and lift resistor and insulator (28) the base assembly.

d. Inspection. Visually inspect all components for physical damage to terminals, solder joints or any other damage which would impair or prevent proper operation. Check capacitors for cracks or electrolyte leakage. Check electrically for opens or shorts.



1. Lead
2. Lead
3. Capacitor
4. Capacitor
5. Strap
6. Screw
7. Lock washer
8. Link
9. Weatherstrip
10. Diode
11. Diode
12. Screw
13. Nut
14. Lock washer
15. Support
16. Screw
17. Lock washer
18. Washer
19. Nut
20. Spacer
21. Retainer
22. Nut
23. Lock washer
24. Base
25. Screw
26. Washer
27. Screw
28. Insulator

Figure 4-23. Capacitor and diode assembly, exploded view.

e. Assembly. Refer to figure 4-23 and assemble the diode and capacitor assembly as follows:

(1) Secure resistor (21) and insulator (28) to the frame with nuts (22), lock washers (23), and screws (27).

(2) Secure the diode (11) to the support (15) with screws (12), nuts (13) and lock washers (14). Secure diodes (10) with hex nuts. Apply a light coat of silicone grease to support (15) in area of diodes to assure complete contact between support surface and diodes for heat sink purposes.

(3) Install links (8) with screws (6) and lock

vashers (7). Position the capacitors (3 and 4) in the netal band (5). Place weather strip (9) between the apacitors and the metal band. Tighten the band nugly.

(4) Connect electrical leads (1 and 2) that vere removed during disassembly.

f. Installation.

(1) Install the diode and capacitor assembly nd resistor in the truck frame.

(2) Secure in place with nuts, washers and crews (fig. 4-22).

(3) Connect all electrical leads and double heck wiring for possible errors. Connect leads to esistor.

4-21. Control Board Assembly

a. Description. Refer to figure 4-24.

(1) *Timing and pulse width modulation circuit.*

(a) The basic timing pulses produced by the ontrol board originate in uni junction transistor)1. These pulses are produced at a steady rate and he rate is assured in part by Zener diode ZD1 vhich is used for voltage regulation in this part of he circuit.

(b) The conduction of Q1 causes timing apacitor C2 to charge until Q1 cuts off. When Q1 tops conducting, C2 has a discharge path through he frequency adjust resistor R56, As C2 reaches he discharge condition, Q1 conducts again and the ycle is repeated. The setting of R56 determines the ate of discharge (frequency of pulses) of C2. (The esistance value of R56 is determined at the fac- ory.)

(c) The pulses from Q1 uni junction circuit, vhich are developed across R14, are delivered to ransistors Q3 and Q4 which are connected in a flip- lop circuit. The characteristics of the flip-flop ircuit are such that while one side is conducting he other one is cut off. Each pulse developed across R14 causes the conducting side of the flip-flop to be ut and the cutoff side to start conducting.

(d) Resistor R7, capacitor C3, and tran- istor Q2 form a differentiating circuit that converts he output of the flip-flop into sharp pulses that ccur (120 times per second) at the rate determined y the setting of frequency adjust resistor R56. When Q3 turns off, a pulse of drive current is pplied through the emitter-base junction of Q2 to urn it on briefly. But this is a pulse of drive current nly, because as soon as C3 charges, the current ust stop. The capacitor discharges back around hrough the flip-flop when Q3 turns on again and repares itself for the next cutoff of Q3.

(e) The brief conduction of Q2 during the ulse allows drive current to flow from common B2+) through the emitter-collector junction of ulse amplifier transistor Q7 to the junction between resistors R23 and R24. The path of current flow is then through R24 to the -15 volts at terminal 6. This current flow turns Q7 on for the brief period of the drive current pulse. When the drive current pulse ends, Q7 turns off and waits for the next pulse.

(f) The fall in voltage at the collector Q7 during its ON time is coupled through diode D14 and resistor R27 to the base of transistor Q8. Diode D14 allows drive current to flow through the base-emitter of Q8 to turn it on for the duration of the pulse. Timing capacitor C15 is connected during that pulse to common (B2+). Current flow from B2+ through Q8, C15 and the base-emitter junction of Q11 to -15 volts at terminal 6 of the control board. This flow charges timing capacitor C15 to approximately 15 volts. The timing capacitor C15, charged to 15 volts by the brief pulses of 120 per second, is given a discharge path through the speed control potentiometer. Current flow is from the positive side of the timing capacitor C15, through resistor R29, along the -15 volt bus, and on terminal 6 to the negative side of the battery. The speed control potentiometer is connected through the contactor panel to common (B2+). Current flow is from common through the variable resistance of the speed control potentiometer, into terminal 5 of the control board and through diode D10 and resistor R37 to the other side of the timing capacitor.

(g) If the timing capacitor C15 was charged only once, and a sufficiently long time was allowed for discharge (longer than a usual cycle), C15 would finally come to equilibrium when it was charged to 15 volts in the opposite polarity. This situation is prevented by the action of transistor Q11. When the timing capacitor has discharged to zero volts, the base-emitter junction of Q11 becomes forward biased, and base current starts to flow, turning Q11 on in saturation. The conduction of Q11 clamps the voltage of the timing capacitor and prevents a buildup of the opposite polarity. The most important effect caused by this circuit is the cutoff of Q11 during the entire cycle after the timing capacitor is charged to its initial polarity. As the speed control potentiometer resistance is reduced, the timing capacitor reaches zero volts at the very end of the cycle interval. Further reduction causes the zero voltage point to be reached sooner, until at zero resistance, the capacitor reaches zero volts at the very beginning of the interval. The translation of the variable position of the speed control potentiometer into a correspondingly varying width of ON pulse of Q11 has now been accomplished. This ON pulse, after being amplified, will be used to provide the control current for the power switch.

(h) The amplifying transistor Q12, at the output of the Q11 collector, turns on and off in direct response to Q11.

(i) Transistor Q11 turns on two times during each cycle. One time is the ON pulse duration directly proportional to the position of the speed control potentiometer. The second turn-on is the brief time during each cycle when the timing capacitor is charged with a brief pulse. This turn-on of Q11 is undesirable and is suppressed or blanked by a blanking pulse, (para 5 *(e)*.)

(j) The variable pulse width output at the collector of amplifier transistor Q12 is coupled through one more amplifier section before the final output. This amplifier performs an inversion so that the final drive to the power switch assembly is in phase with the output Q12. Collector current of Q14 flows through a separate resistor of the resistor assembly. One end of the resistor is connected to terminal 4 of the control board and the other end to the negative side of the battery.

(k) The collector of Q15 is connected at terminal 2 of the control board to one end of a resistor in the resistor assembly; the other end of the resistor is connected to the negative terminal of the battery. Since Q15 handles a considerable amount of current, it is mounted on a heat sink.

(l) Conduction of Q15 allows current to flow from common (B2+), through the emitter-base junction of the cascade connected transistors in all the paralleled modules of the power switch assembly. Current flow is then from the base resistors of the drive transistors into terminal 3 of the control board, through Q15 in its turned on condition, out terminal 2 of the control board, and through the drive resistor in the resistor assembly to the negative side of the battery. The base drive current of Q15 flows through Zener diode ZD3 as part of its normal path.

(2) *Bias generation circuit.*

(a) The bias generation circuit is driven by the Q4 side of the flip-flop circuit. The bias voltage produced is applied at terminal 1 of the power switch assembly, through the diode block to the base of the transistors of the power switch (as stated previously) to keep them turned off in the absence of a control signal. At low operating voltages they could stay off by themselves, but when they are holding off 36 volts, they tend to leak current unless this back bias voltage is present.

(b) This circuit works in such a fashion that transistor Q4 drives transistor Q5, which in turn drives transistor Q6. When Q6 is not conducting, capacitor C7 charges toward 36 volts through diode D2 and through the 33-ohm resistor in the resistor block assembly connected to terminal 7 of the control board. Conduction of Q6 allows current to flow from common (B2+) through Q6. Capacitor C7 discharges through diode D3 and deposits some of its charge in capacitor C8. When this process is repeated several times, the voltage across C8 will build up toward 36 volts. The polarity of this voltage on C8 is such that the negative side is referenced to common (B2+), the positive side of the battery. At the positive terminal of C8, there is a voltage more positive than the battery voltage. A steady voltage more positive than zero volts, but not as high as 36 volts, will be maintained at the positive side of C8. The reason for this is that while the load is continually drawing power, the pulsing circuit is continually building voltage at C8. An equilibrium will be reached when the power in-flow to the circuit equals the power taken out by the load.

(c) The main load path for the bias generating circuit is from the positive terminal of C8 through R54 to terminal 1 of the control board. Terminal 1 of the control board connects to the diode bias block in the power switch assembly. With this permanent load attached, the value of the 33-ohm resistor in the resistor assembly is adjusted so that the positive terminal of C8 retains a charge of about 15 volts. The main load current across R54 is sufficient to produce approximately a 10-volt drop. This voltage clamps the level at terminal 1 of the control board and the power switch assembly to 4.7 volts.

(d) Secondary load paths for the bias generating circuits are through resistors R21, R26, R38, R53, R55 and R61, through D5 and Q16.

(3) *Current sensing circuit.*

(a) The voltage signal provided by the current limit shunt is connected to terminal B1+ of the control board. The signal is divided across a set voltage divider consisting of the current limit adjustment R63, R59, Q13, R42, R39 and TH1 in parallel with gate-cathode junction of SCR1 and C17. Transistor Q13 collector-base junction used as a diode is necessary to prevent interaction between the current sensing and undervoltage sensing circuits. The two circuits meet at a junction between Q13 and R42.

(b) Resistor R42 and capacitor C17 to common (B2+) form a pulse filter with a short time constant. This filter is used to smooth out a thin spike at the leading edge of the power current pulse through the power switch. This spike is above the normal current level and is a result of the free-wheeling diode's inability to immediately recover its blocking condition when the power switch turns on each cycle.

(4) *Undervoltage sensing circuit.*

(a) The undervoltage circuit, connected to the negative side of the battery at terminal 8 of the

control boa. d, samples the voltage across the battery to provide low voltage protection.

(b) One part of the circuit establishes a steady low voltage positive reference voltage. The positive bias voltage at capacitor C8 is filtered by diode D5 and capacitor C12, and is clamped to 8.2 volts by the action of Zener diode ZD2.

(c) Diode D4 and capacitor C13 at terminal 8 of the control board remove surge current from the undervoltage circuit. A voltage divider network, consisting of Zener diode ZD4 and resistor R57 with ZD4 profiding a constant voltage drop, gives a fast acting undervoltage circuit.

(d) The 8.2 reference voltage and the attenuated battery voltage are added at the junction of R58, R49, and D12.

(e) Under normal battery conditions, the add junction is negative with respect to B2+. When the battery has a low specific gravity and is highly loaded, the battery voltage will drop drastically to make the voltage at the add point go positive with respect to B2+ and thus fire SCR1.

(f) Silicon controlled rectifier SCR1 and its associated circuitry, used in the current sensing operation, is shared by the undervoltage circuit and works the same way for this circuit. The SCR1 is held OFF and the power switch assembly is allowed to operate as long as the potential at the junction of R58 and R49 is negative. A positive potential causes D12 to conduct and places a positive signal on the gate of SCR1. This positive gate causes SCR1 to conduct and turn off the power switch.

(5) *Current limit circuit.*

(a) If the signal applied to the gate of SCR1 is a positive voltage of approximately 0.5 volt with respect to its own cathode, SCR1 turns on and stays on until the end of that particular cycle. Current flow is from the positive terminal of the bias generation circuit capacitor C8, through R38, SCR1, and to current limit common C2+. When SCR1 turns on, approximately 15 volts are developed across R38; this voltage turns Q16 on through the resistor network of R60 and R61. When Q16 is on, it connects the base of Q12 to the positive bias voltage through R62; thus Q12 is biased off even though an on signal is present. The reverse bias voltage overcomes the drive signal at the base of Q12.

(b) Once SCR1 is turned on it stays on even in the absence of a firing voltage until its anode current is brought to zero long enough for it to recover its forward blocking condition.

(c) The resetting of SCR1 after every cycle is accomplished by diode D6 connected between the anode of SCR1 and the collector of transistor Q7.

(d) When Q7 turns on briefly at the beginning of each cycle as described earlier, the cathode of D6 is clamped to a point more negative than common (B2+). This causes the anode current of SCR1 to be diverted and flow through D6 to this more negative point which allows SCR1 to turn off.

(e) The blanking pulse is derived from the SCR reset pulse. When Q7 turns on, the voltage developed across R38 again turns Q16 on which in turn biases Q12 off. This happens at the same time Q8 and Q11 are on to charge timing capacitor C15; so if Q12 is biased off when Q11 is on to charge C15, blanking has been performed.

(f) While SCR1 is being reset, it is important to remove any pulses to its gate to prevent its firing on some noise pulse. This is accomplished by diode D8. The cathode of D8 is connected to the anode of SCR1 and its anode is connected to the gate of SCR1. Diode D8 clamps any incoming gate signal to a negative voltage while SCR1 is being reset.

LEGEND

C	CAPACITOR
D	DIODE
Q	TRANSISTOR
R	RESISTOR
T	THERMAL RESISTOR
ZD	ZENER DIODE

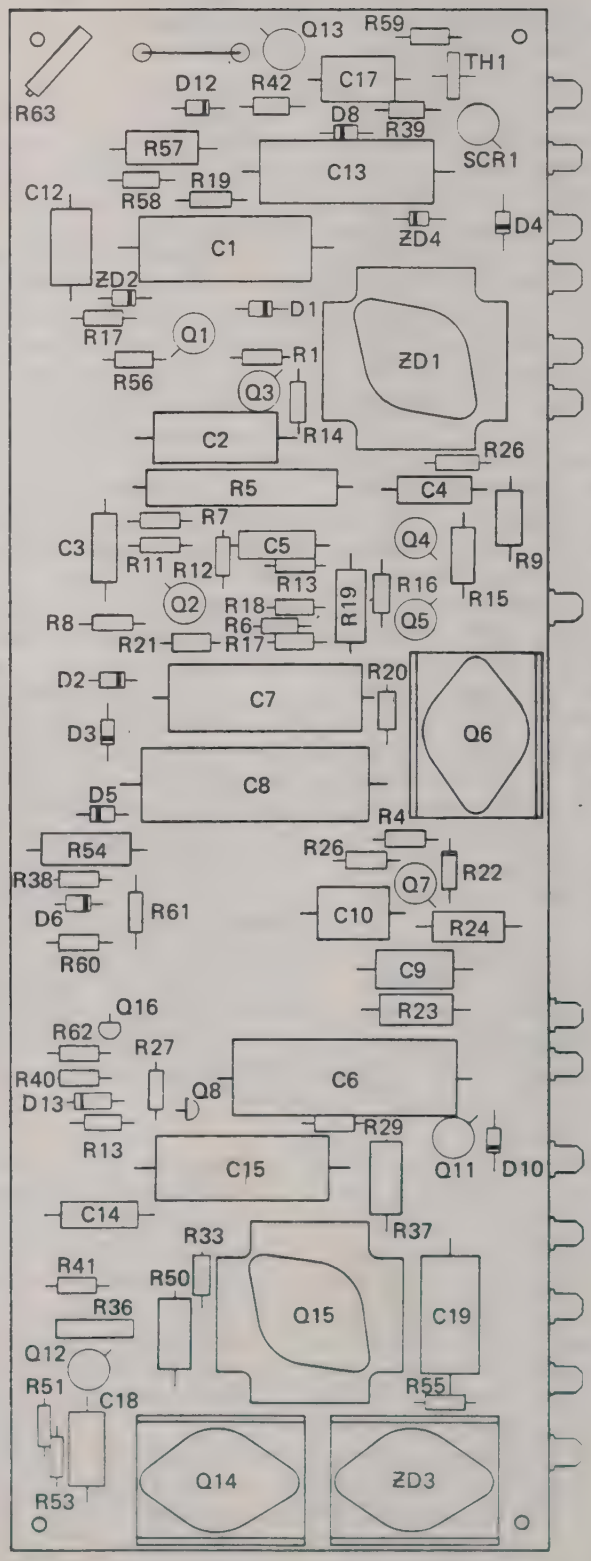


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Figure 4-24. Control board assembly.

b. Removal.

(1) Raise front of truck and block frame to leave drive wheels clear of floor.

(2) Remove floor and toe plates.

(3) Remove four screws and remove cover from control board compartment.

(4) Refer to figure 4-25 and remove three screws securing control board assembly to truck frame.

(5) Lift control board assembly out of truck frame by tilting end of control board which is toward front of truck higher than the other end. Lift board up and out of well and rest board on truck frame.

Note. After testing (*c* through *f* below) tag and disconnect all electrical leads and remove control board assembly.

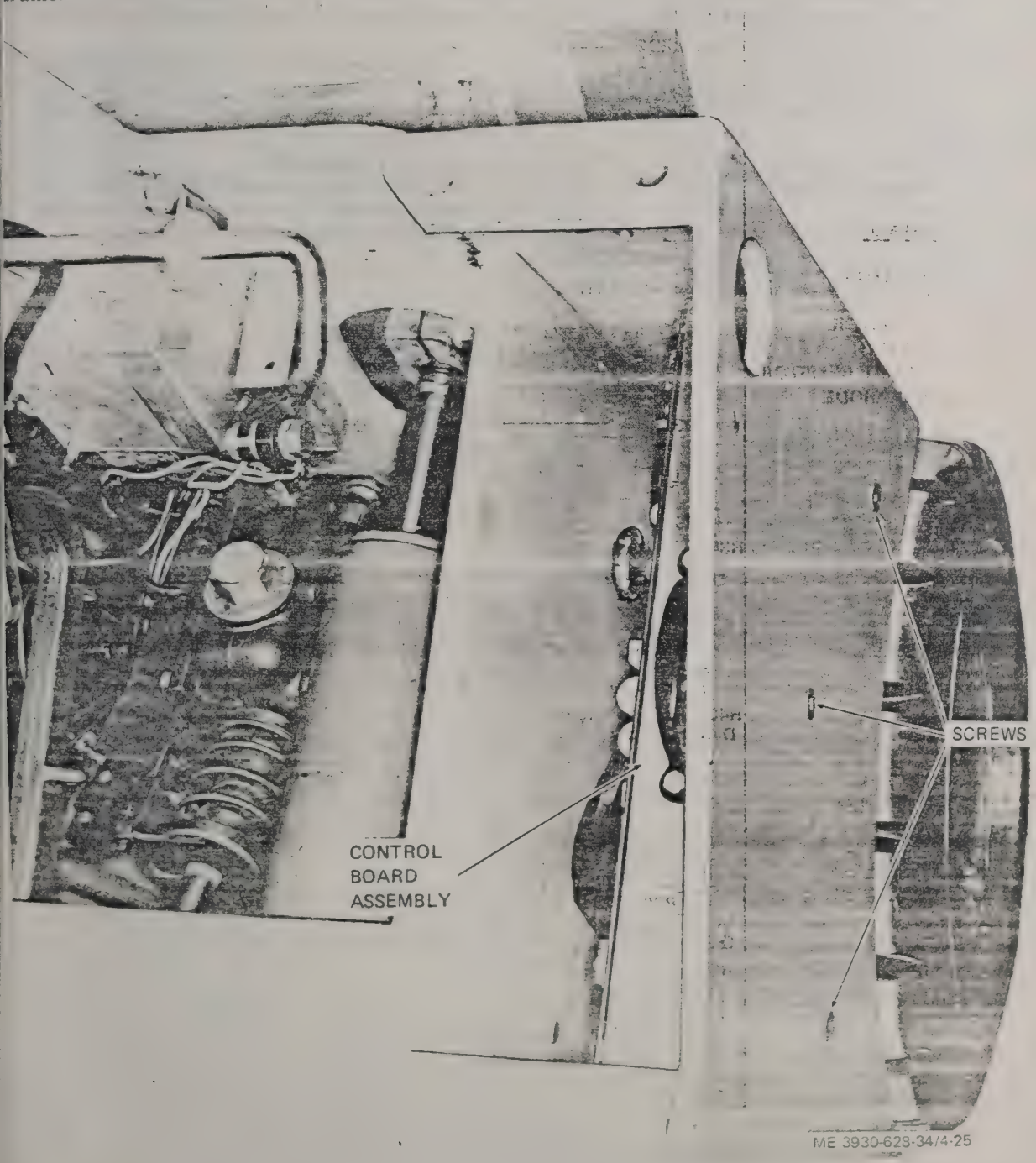

Figure 4-25. Control board assembly removal.

c. Testing. These tests must be conducted with control board assembly connected to the truck circuits.

(1) In order to properly test and rebuild a control board, an oscilloscope must be used. The recommended minimum rquirements for the oscilloscope are as follows:

(a) Horizontal sweep.

1. Calibrated sweep circuit.

2. Sweep range from .1 sec / cm to 0.5 msec / cm.

(b) Vertical amplifier.

1. Calibrated vertical amplifier.

2. Input range from 0.2 V / cm to 10 V / cm preferred.

(c) Frequency response.

1. Frequency response from dc to 1 mh (megahertz / sec).

2. Avoid "wide band type" scope. It may produce distortion of low-frequency waveforms.

(2) A 50 millivolt, 500 amp shunt is also required.

(a) Equipped with battery type connectors to be connected between battery and controls.

(b) Two, approximately 12 inch long, leads equipped with quick-disconnect clips for use as jumper cables.

(3) Test stand.

(a) A permanent test stand is not necessary to perform the following tests. However, if one is available it should be used to assist in testing and repairing the control boards as outlined in table 4-2.

(b) If a test stand is not used, lay control board assembly face up on a table or on the truck frame (while still connected to the truck harness). Insure that control board components do not come in contact with truck frame.

(c) Before the protective circuit board can be properly checked, the control board must be checked and must be good.

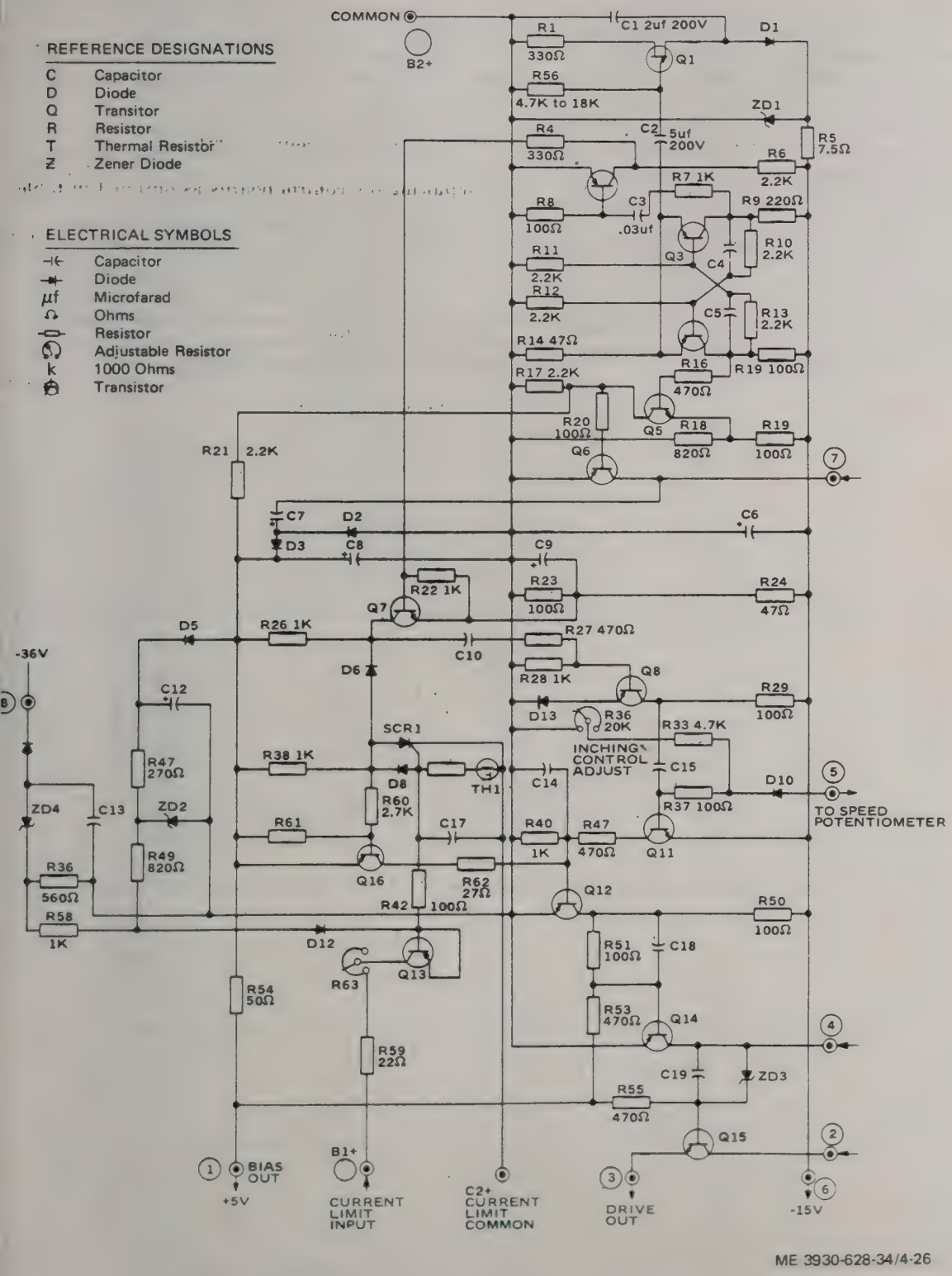

Figure 4-26. Control board assembly schematic wiring diagram.

(4) *Circuit tests.* Test the circuit board as directed in Table 4-2. This table will give the scope settings, the test connections to be made and the readings that are to be obtained. This table will also give the cause of the defect if one should exist. Replace any defective parts as authorized. The wave forms on figures 4-28, 4-30, 4-32, 4-34 and 4-38 and the test connections shown on figures 4-27, 4-29, 4-31, 4-33 and 4-35 are given to aid the performance of the tests.

Note. The following tests will be performed with the control board assembly connected to the truck harness. An operator must occupy the seat and move the controls as directed to perform the tests. The emergency stop switch and seat switch must be closed to make the circuits operative. Figure 4-26 is a schematic diagram of the control board circuits.

(a) Unless otherwise indicated, the tests are to be performed with the key switch on.

(b) Touch the oscilloscope probes at the points listed under "Connections" to get the readings specified.

(c) In test numbers 10a, 10b, 11, 12, 13 and 14 the following conditions under connection are applicable:

1. The note (speed at min. value) is obtained by placing the forward and reverse control lever in forward or reverse and depressing the accelerator slightly to actuate the foot switch.

2. The note (speed at max. value) is obtained by placing the forward and reverse control lever in forward or reverse and depressing the accelerator completely to the floor.

Table 4-2. Circuit Board Test Locations and Results

Test No	Scope Settings: Horizontal Sweep	Scope Settings: Vertical Amp	Trigger	Connections	Readings	Wave shape (fig.)	Possible cause
1	1 msec / cm	5 V / cm	—Ve	B2+ to junction of R5 and ZD1 (fig. 4-29)	—9.8 V steady dc voltage	4-28*a*	Wrong or defective resistor or connections from term. No. 6 control board and resistor assy. and connections to key switch or negative battery term. Also, ZD1 (SZ1651 Zener diode) shorted, short circuit on control board, shorted C6 (1000 mfd, 25V capacitor).
2	1 msec / cm	2 V / cm	—Ve	B2+ to junction of C2 and R14 (fig. 4-29)	—2.8 V Spike to —5.5 V Pulses 4.2 Ms apart	4-28*b*	Defective resistor R56 (frequency control), defective Q1 (2N1671A), open or shorted capacitor C2 (0.5 mfd), D1 open, shorted or installed backwards or if instability is present, D1 (1N4002 diode) may be shorted.
3	1 msec / cm	5 V / cm	—Ve	B2+ to junction R9 and R10 B2+ to junction R13 and R15 (fig. 4-29)	—8 V	4-28*c*	To set frequency, change value of R56 (may have values of 4.7K to 18K ohms) until pulses are 8.3 msec apart. Defective Q3 or Q4, or both transistors faulty (shorted, open, leaky, low gain). Wrong values of R9, 10, 11, 12, 13, 14, 15 and R7 & R16. Also possible loading through R7 and R16; disconnect these resistors and retest.
4	1 msec / cm	5 V / cm	+Ve	B2+ to terminal No. 7 (fig. 4-31)	—9.9 V	4-30*a*	Transistors Q5 or Q6 shorted, incorrect values of resistors: R16, 17, 18, 19, 20, and 21. Open condition in term. No. 7 circuit.
5	1 msec / cm	5 V / cm	+Ve	B2+ to junction of R54 and R61 (fig. 4-31)	+16.3	4-30*b*	Capacitors C8 or C7 shorted or installed backwards, diodes D2 or D3 open, shorted, or installed backwards. If the voltage measured is excessively high, the resistor in resistor block connected to term. No. 7 may be of wrong value, or the power switch diode bias block may be connected backwards or may be open.

Table 4-2. Circuit Board Test Locations and Results—Continued

Test No	Scope Settings: Horizontal Sweep	Scope Settings: Vertical Amp	Trigger	Connections	Readings	Wave shape (fig.)	Possible cause
6	1 msec / cm	2 V / cm	+Ve	B2+ to terminal No. 1 (fig. 4-31)	4.9 V Steady DC voltage	4-30*c*	Possible heavy load or short circuit; remove loads (disconnect lead on term. No. 1 and unsolder R55) separately until voltage rises to +15 volts. If voltage does not rise, determine location of fault. If voltage does not rise, R54 may be open.
7	1 msec / cm	5 V / cm	+Ve	B2+ to junction of R4 and R6 (fig. 4-31)	—11.7 V, Narrow pulse from steady —11.7V to about 0 V	4-30*d*	Transistor Q2 shorted or open, capacitor C3 open.
8	1 msec / cm	5 V / cm	+Ve	B2+ to junction of R26 and C10 (fig. 4-33)	+15.9 V, Narrow pulse from almost +15.9 V to —10 V	4-32*a*	Defective transistor Q7, incorrect values of R22, 23, 24 resistors, faulty capacitor C9.
9	1 msec / cm	5 V / cm	+Ve	B2+ to junction of C15 and R29 (fig. 4-33)	—14.1 V, Narrow pulse from steady —14.1 to 0 V	4-32*b*	Faulty R27 resistor or capacitor C10. Defective transistor Q8 (open or shorted).
10a	1 msec / cm	10 V / cm	—Ve	B2+ to junction of C15 and R37 (speed at min value) (fig. 4-33)	—20.5 V	4-32*c*	Diode D10 open or installed backwards, speed pot faulty, inching trimpot R36 faulty.
10b	1 msec / cm	10 V / cm	+Ve	B2+ to junction of C15 and R37 (speed at max value) (fig. 4-33)	—12.5 V almost steady	4-32*d*	
11	1 msec / cm	2 V / cm	+Ve (speed max) —Ve (speed min)	B2+ to junction of C18 and R50 (fig. 4-33)	—0.1 V (speed max) —7.5 V (speed min)	4-32*e*	Faulty transistors Q11, Q12, wrong component values. Faulty or maladjusted inching trimpot R36.
12	1 msec / cm	5 V / cm	—Ve	B2+ to terminal No. 4 (fig. 4-35)	—0.1 V (speed min) —11.7 V (speed max) Square wave from steady —11.7 V to —0.1V (fig. 4-34)	4-34*a*	Faulty resistor connected to term. No. 4 in resistor assembly. Faulty transistor Q14, resistor R53, or open or intermittent bias connection to control board term. No. 1. If square wave is not sharp and square, capacitor C18 may be faulty.
13	1 msec / cm	10 V / cm	—Ve (speed max) +Ve (speed min)	B2+ to terminal No. 2 (fig. 4-35)	—36.7 V (Speed min) —6.8V (speed max) Square wave from —6.8 V to about —36V	4-34*b*	Q15 transistor or ZD3 faulty, R55 open. Faulty resistor in resistor assy. that is connected to term. No. 2. If wave is not sharp and square, capacitor C19 may be faulty.

Table 4-2. Circuit Board Test Locations and Results - Continued

Test No	Scope Settings		Trigger	Connections	Readings	Wave shape (fig.)	Possible cause
	Horizontal Sweep	Vertical Amp					
14	1 msec / cm	2 V / cm	—Ve	B2+ to terminal No. 3 (fig. 4-35)	+3.2 V (speed min) —4.8 V (speed max) Square wave from steady —4.8 V to +3.2 V	4-34*c*	Open circuit to power switch term No. 3. Q15 transistor or ZD3 faulty.
15	2 msec / cm	2 V / cm	0	B2+ to terminal No. 3 (fig. 4-35)	3V to —6V	4-34*d*	*a*. Current limit too low - wrong current limit shunt, wrong value of resistor R42, capacitor C17 faulty, current limit resistor R5 faulty or incorrect value. *b*. Current limit at all times - SCR1 shorted, capacitor C17 open, diode D8 shorted, Q16 faulty.
16	1 msec / cm	5 V / cm	+Ve	B2+ to junction of R47 and ZD2 (fig. 4-37)	+8.2V Steady DC Voltage	4-36*a*	Diode D5 open, R47, R49, C12 or ZD2 faulty.
17	1 msec / cm	10 V / cm	+Ve	B2+ to terminal No. 8 (fig. 4-37)	—36.5V Steady DC Voltage	4-36*b*	If this voltage is improper, the cause must be something external to the board, i.e. a fuse, fast-on terminal, wire, etc.
18a	2 msec / cm	10 V / cm	+Ve	B2+ to junction of D8 and R38 (fig. 4-37)	+15.8 V to —5 V	4-36*c*	*a*. SCR1, D8, TH1, or C17 faulty. *b*. Current limit at all times - SCR1 or Q16 may be shorted.
18b	2 msec / cm	10 V / cm	0	B2+ to junction of D8 and R38 (fig. 4-37)	0V to irregular	4-36*d*	

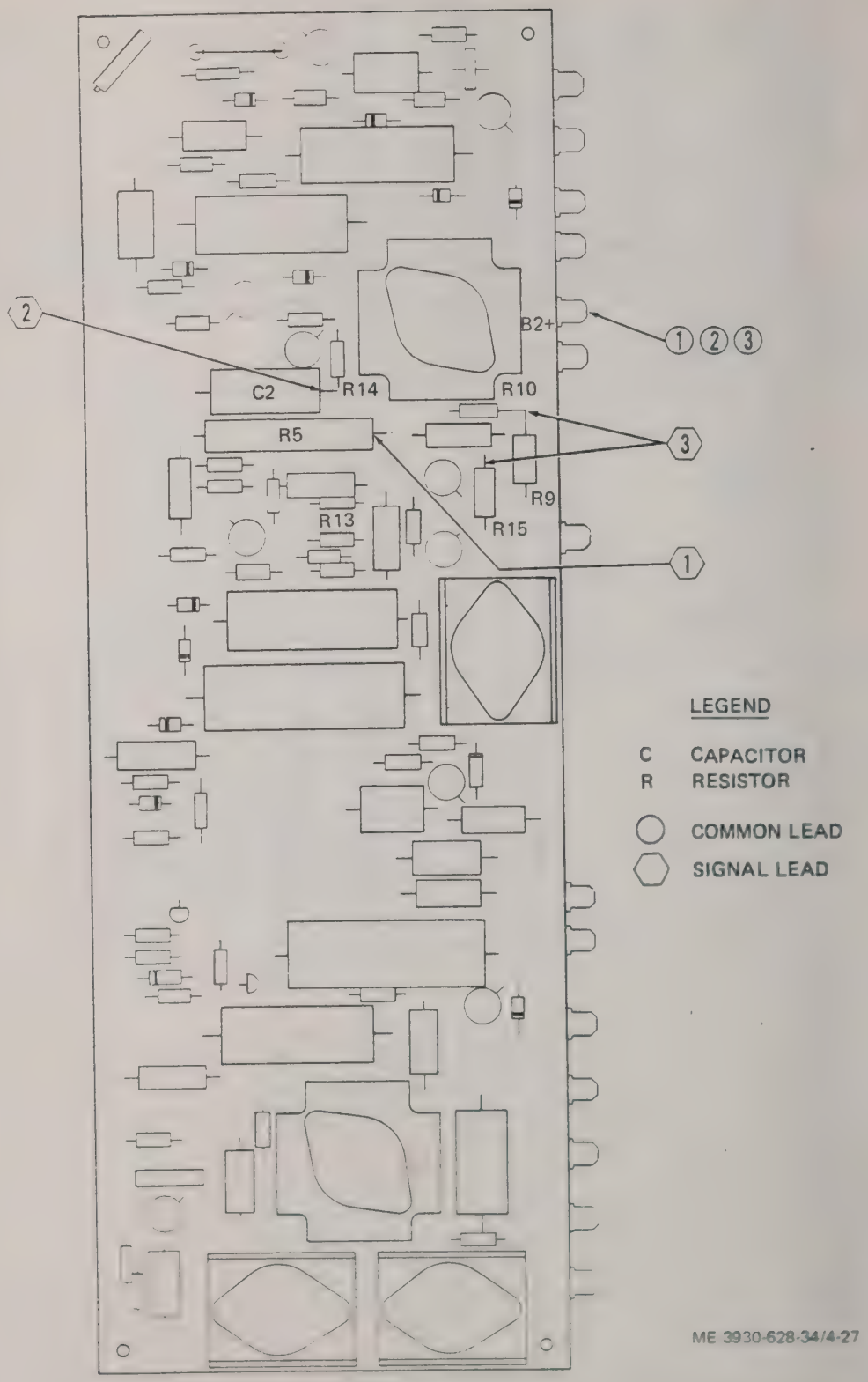

Figure 4-27. Control board test locations (tests 1, 2 and 3).

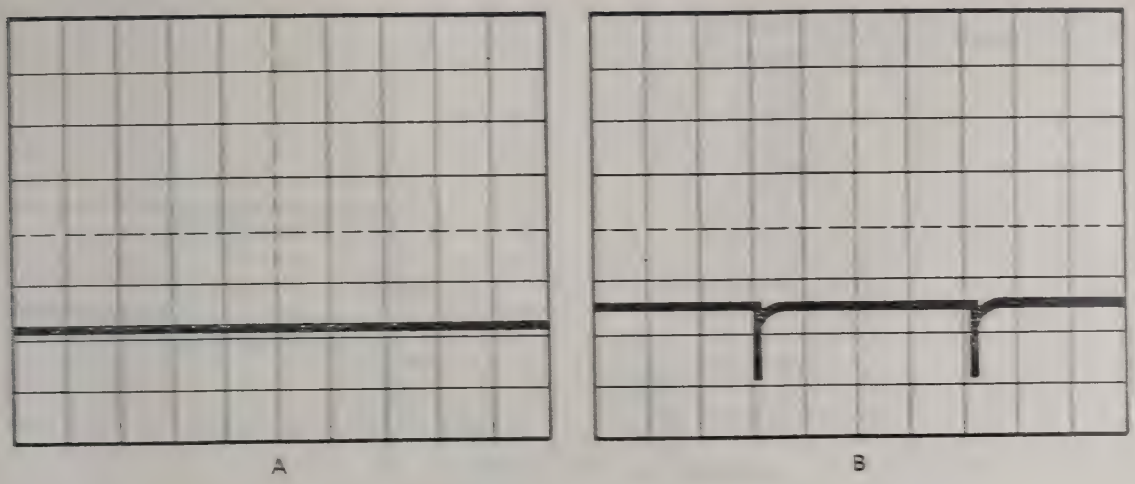

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Figure 4-28. Oscilloscope waveshapes (tests 1, 2 and 3).

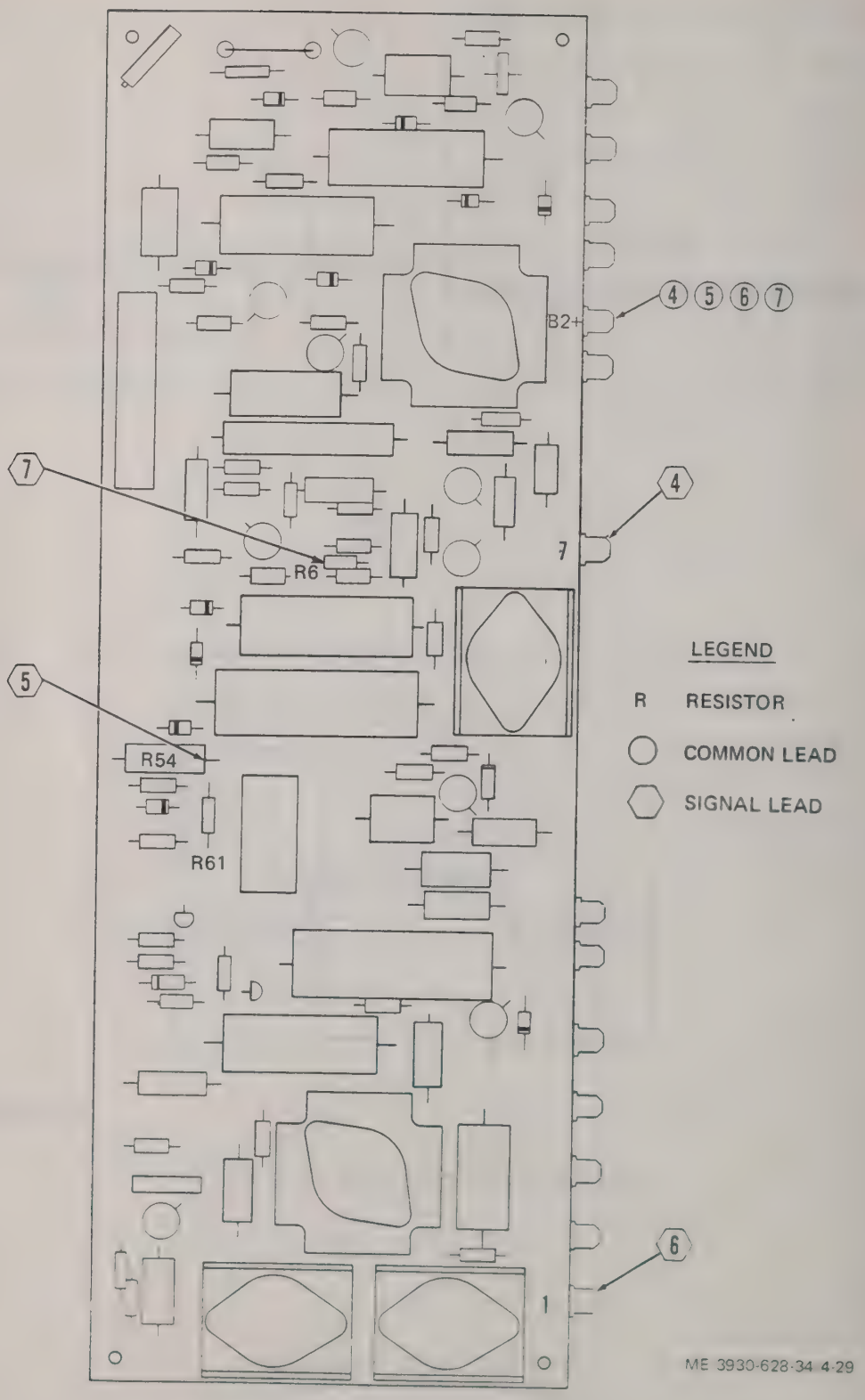

Figure 4-29. Control board test locations (tests 4 thru 7)

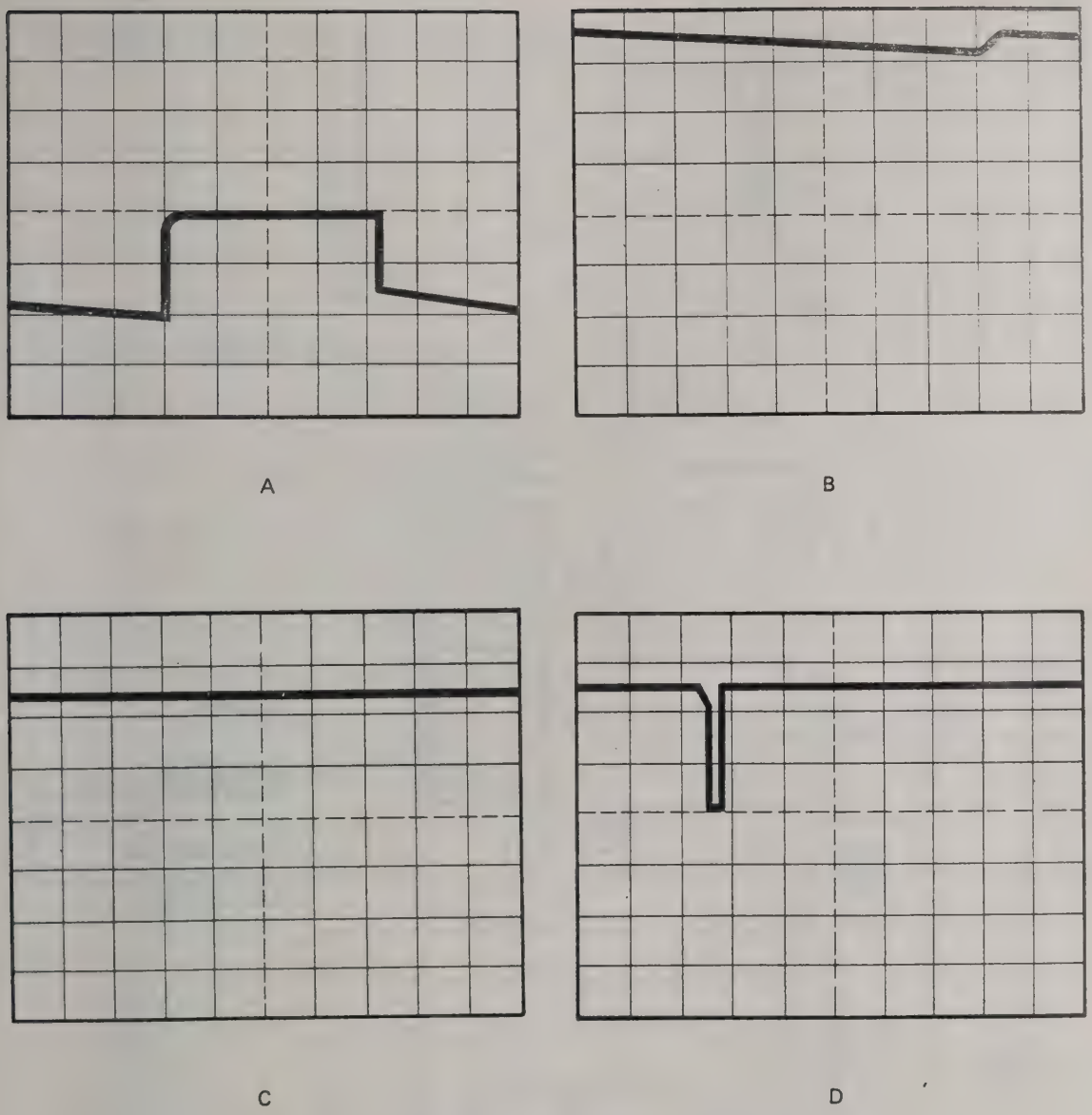

Figure 4-30. Oscilloscope waveshapes (tests 4 thru 7).

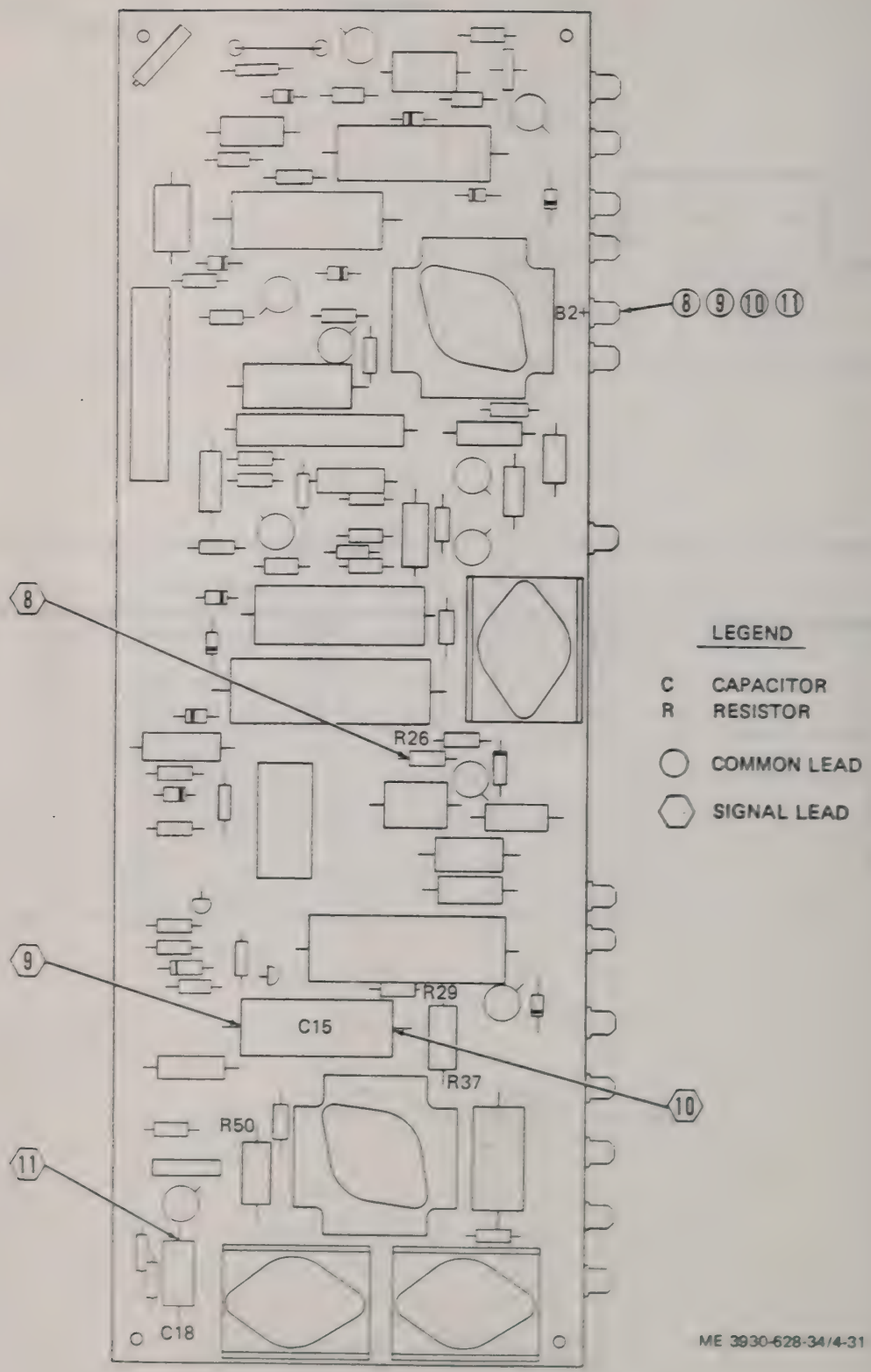

Figure 4-31. Control board test locations (tests 8 thru 11).

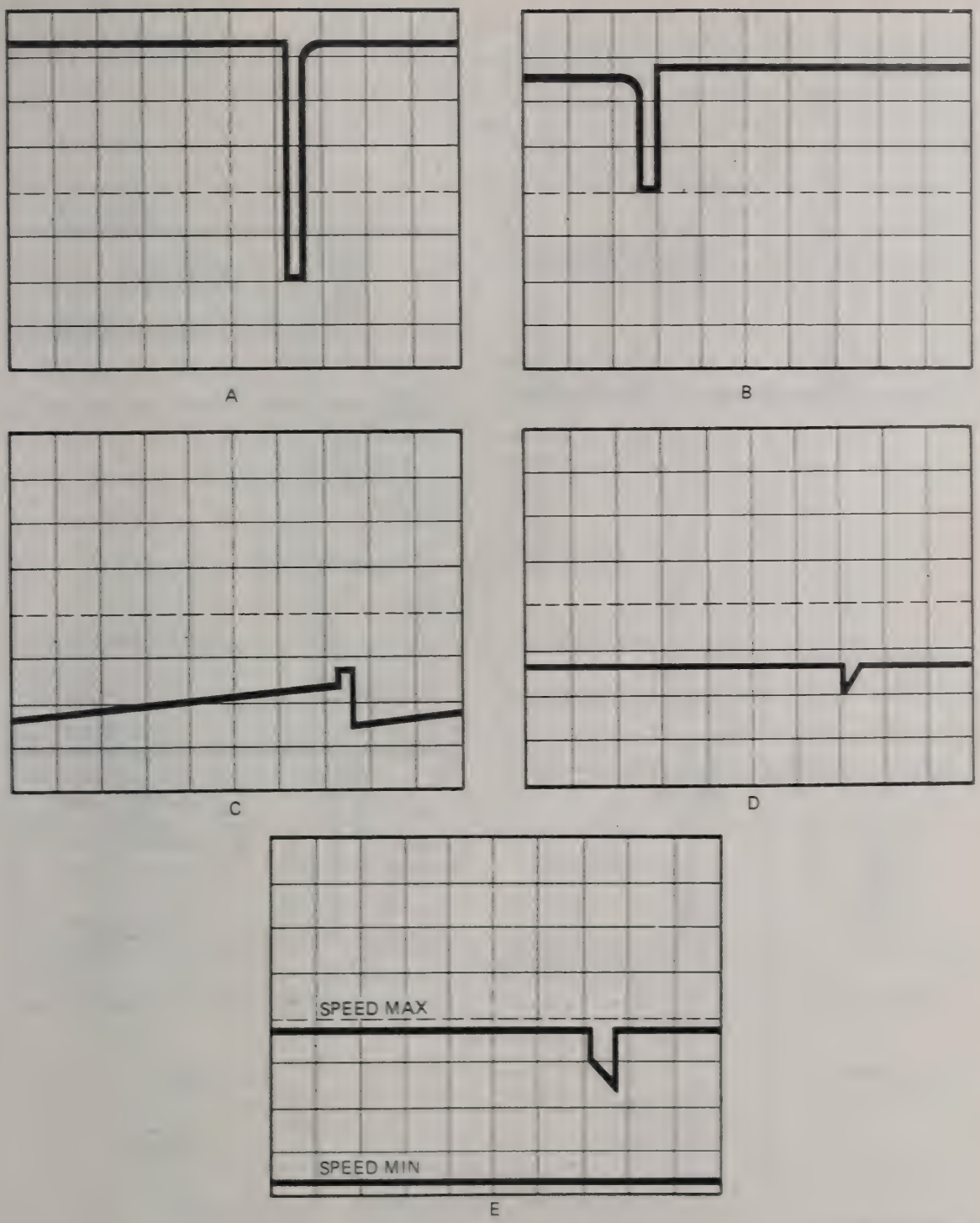

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Figure 4-32. Oscilloscope waveshapes (tests 8 thru 11).

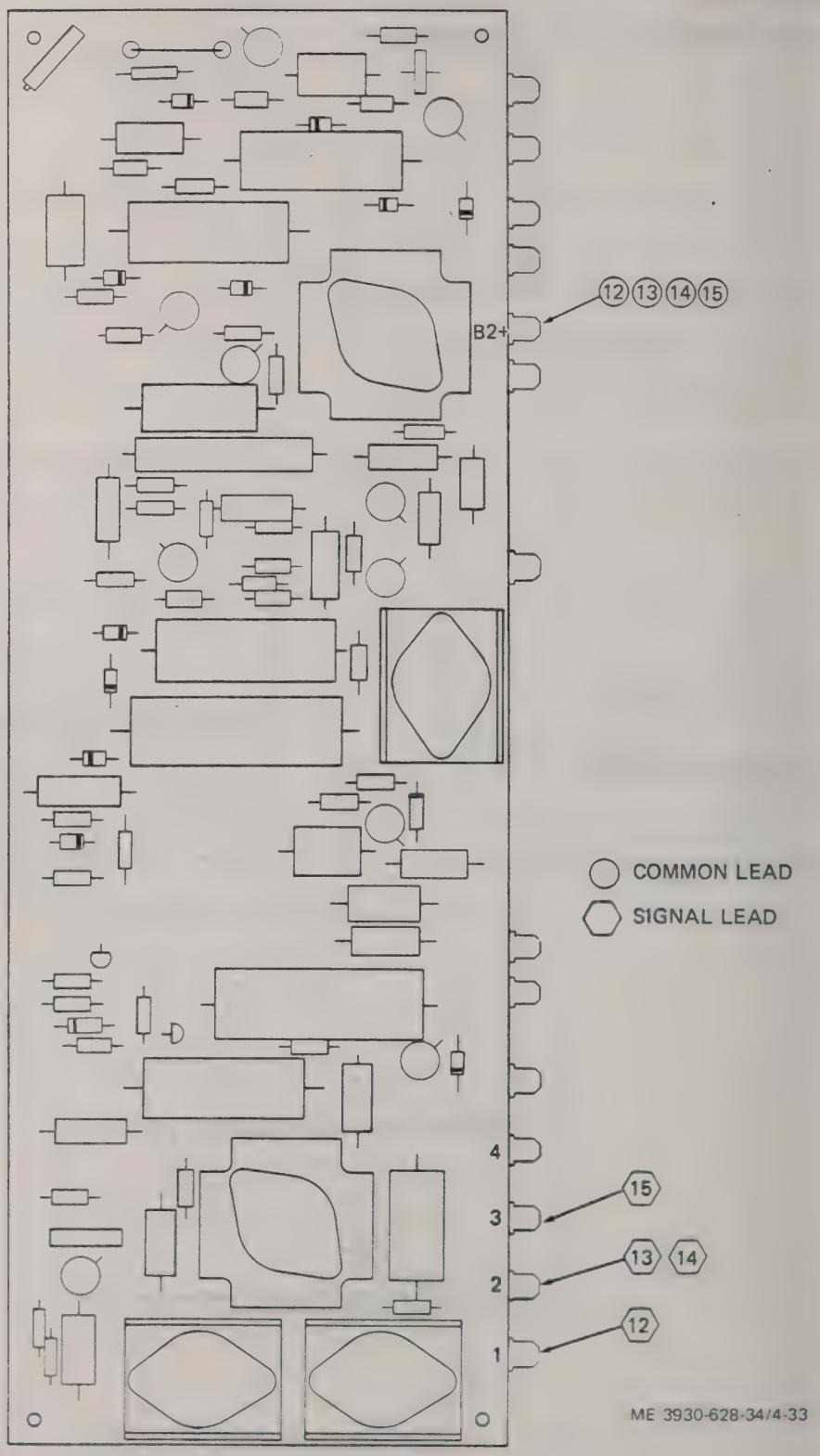

Figure 4-33. Control board test locations (tests 12 thru 15).

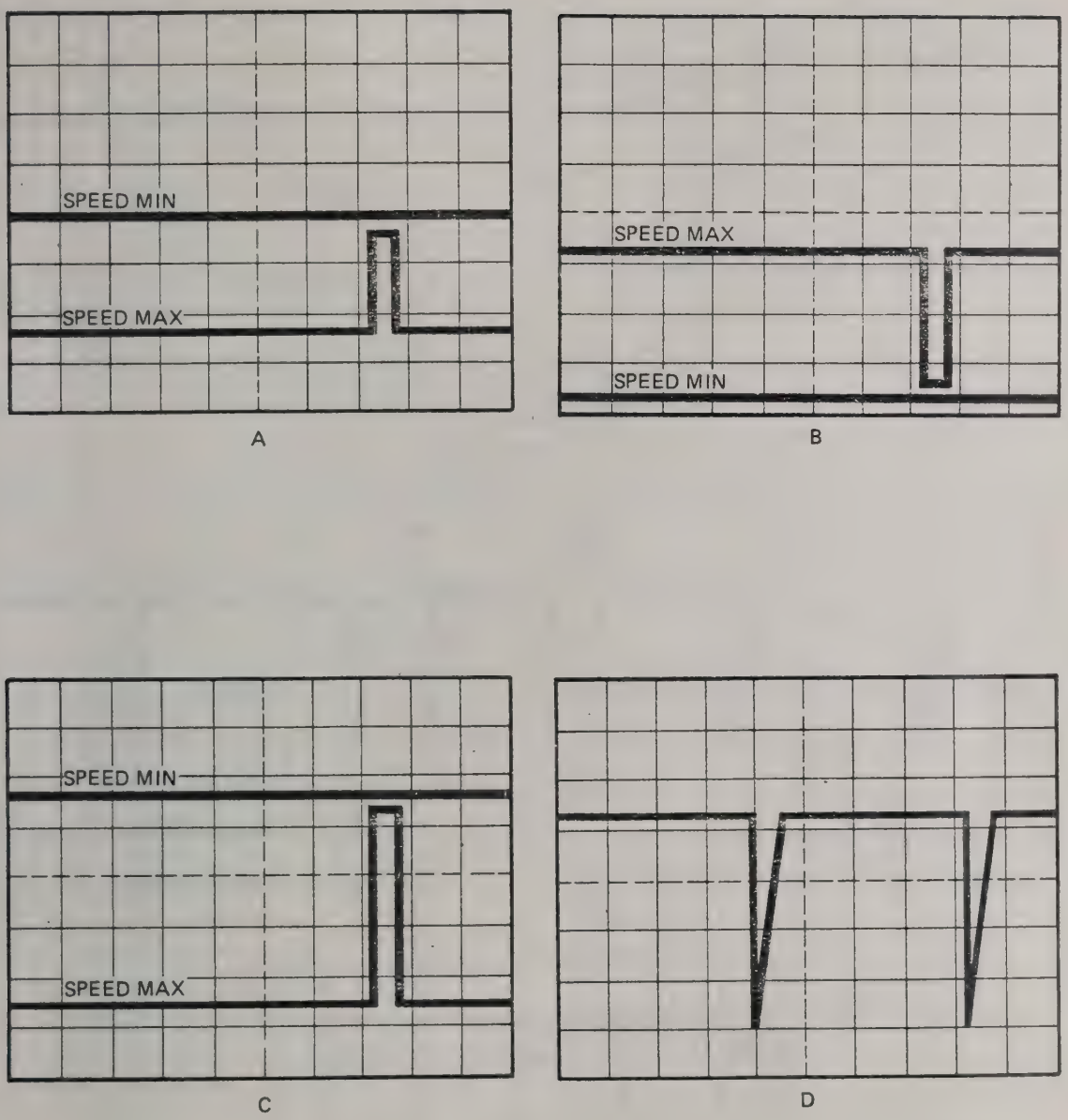

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Figure 4-34. Oscilloscope waveshapes (tests 12 thru 15).

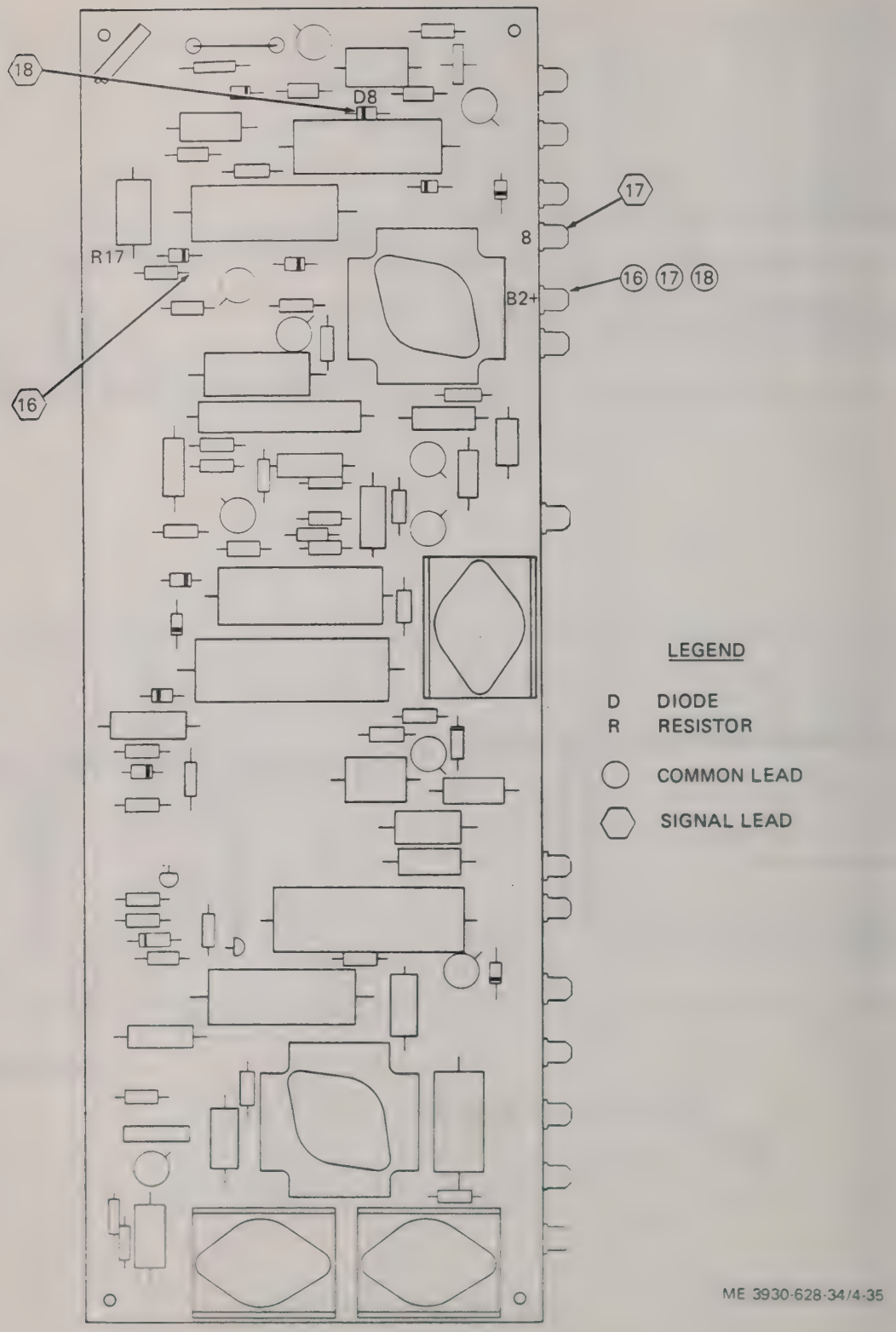

Figure 4-35. Control board test locations (tests 16 thru 18).

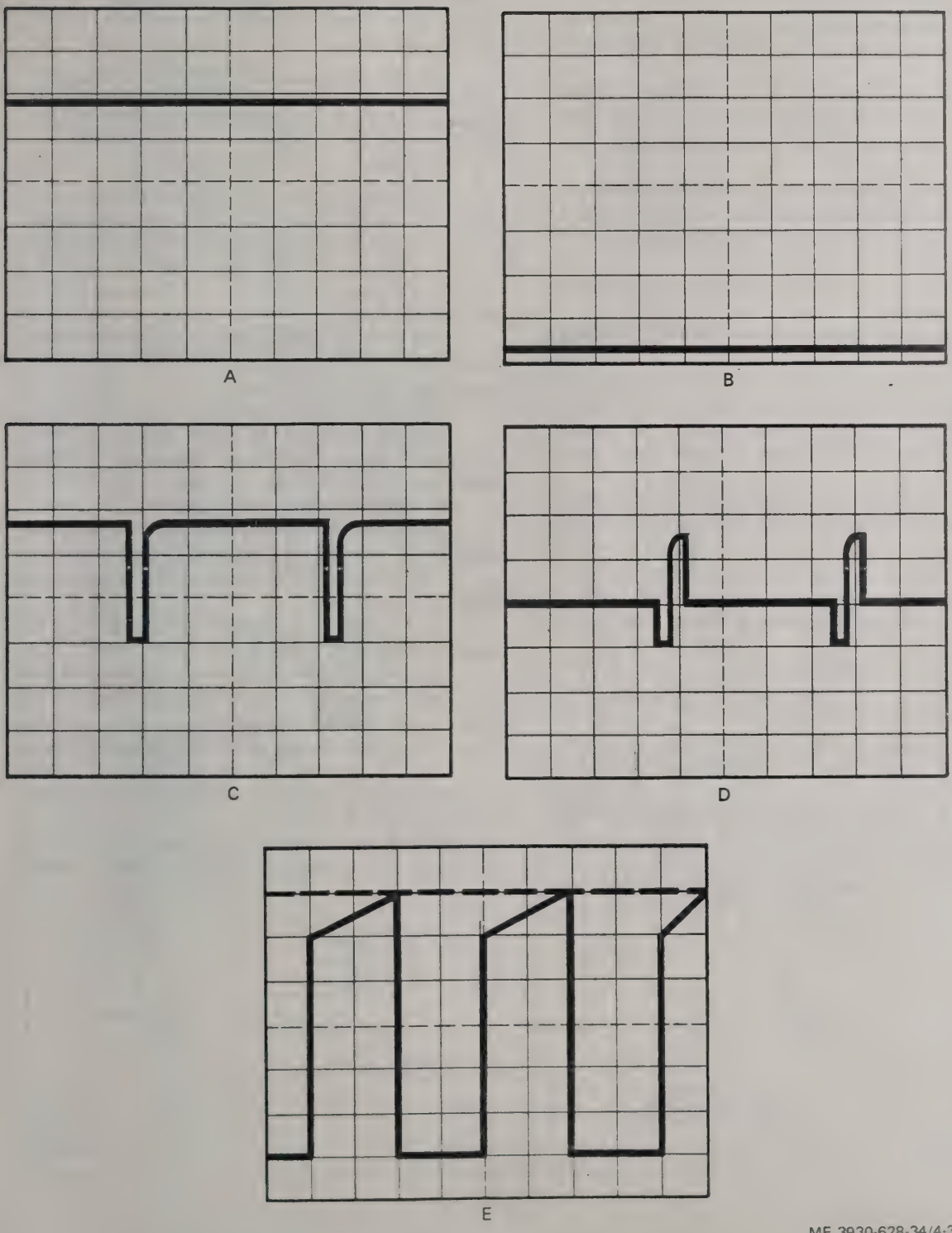

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Figure 4-36. Oscilloscope waveshapes (tests 16 thru 18).

d. Current Limit Test.

(1) Disconnect battery connector. Connect 50 mv, 500 amp shunt between battery and truck connector.

(2) Connect probes of oscilloscope across shunt. Setting of scope should be 2 msec / cm horizontal sweep and 5 mV / cm vertical amp. The trigger is -Ve.

(3) With operator on seat, turn key switch on, place forward and reverse control lever in forward or reverse and depress brake pedal to floor to stall motor.

(4) Depress accelerator to floor until current limit is reached.

(5) Place a jumper across brake interlock switch. Repeat steps (3) and (4). Meter should read 420 to 440 amps.

(6) Remove scope probes and connect a peak battery current meter across shunt. Set meter function selector to required current range (500 amps).

(7) If reading is incorrect, adjust current limit potentiometer (R63) to bring reading into correct limits.

(8) Replace current limit potentiometer (R63) if adjustment cannot be attained.

(9) Disconnect jumper and shunt from truck circuits.

e. Inching Potentiometer Test.

(1) Truck must be raised and blocked with drive wheels clear of floor.

(2) Connect VOM positive lead to No. 3 terminal of control board. Connect negative lead to No. 2 terminal.

(3) With operator on seat place forward and reverse control lever in forward position. Meter should read full battery voltage.

(4) Depress accelerator slightly to close foot switch. Adjust inching potentiometer (R36) until voltage starts dropping to zero and truck wheels start to rotate.

Note. To adjust potentiometer, remove sealing compound from end and turn adjusting screw in or out until proper adjustment is obtained. After adjustment is obtained, seal end of potentiometer with a suitable, removable compound.

f. Protective Circuit Board Tests.

Note. Do not attempt to repair protective circuit board. If tests prove protective circuit board is defective, replace entire board.

(1) *Tripping or bias loss test.*

(a) Connect VOM to No. 35 terminal (fig. 4-39) and to B—.

(b) With operator in seat, place forward and reverse control lever in forward or reverse and turn key switch on.

(c) VOM should read approximately zero.

(d) If reading is more than 2 volts, protective circuit board is defective. Replace protective circuit board.

(2) *Shorted power switch test.*

(a) Place cardboard or insulation between contacts of forward and reverse contactors.

(b) Connect VOM between No. 35 terminal (fig. 4-37) and B—.

(c) Connect a jumper between No. 32 terminal (fig. 4-37) and B+.

(d) With operator in seat, turn key switch on, place directional control lever in forward or reverse and depress accelerator.

(e) VOM should read approximately zero.

(f) If reading is more than 2 volts, protective circuit board is defective. Replace protective circuit board.

(3) *Wiring diagram.* Figure 4-38 is a schematic wiring diagram of the protective circuit board.

REFERENCE DESIGNATIONS

C	CAPACITOR
D	DIODE
Q	TRANSISTOR
R	RESISTOR
ZD	ZENER DIODE

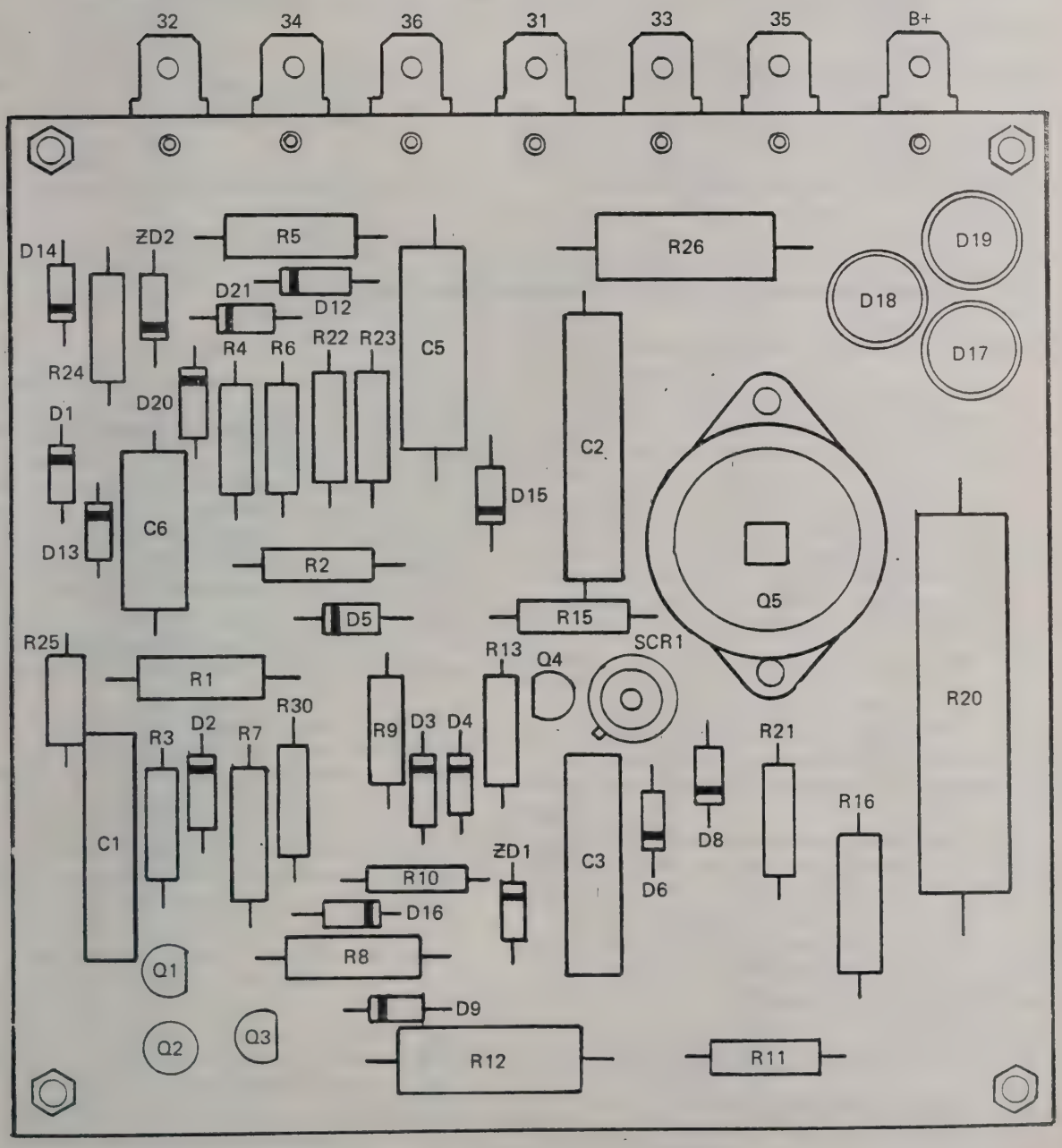

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Figure 4-37. Protective circuit board.

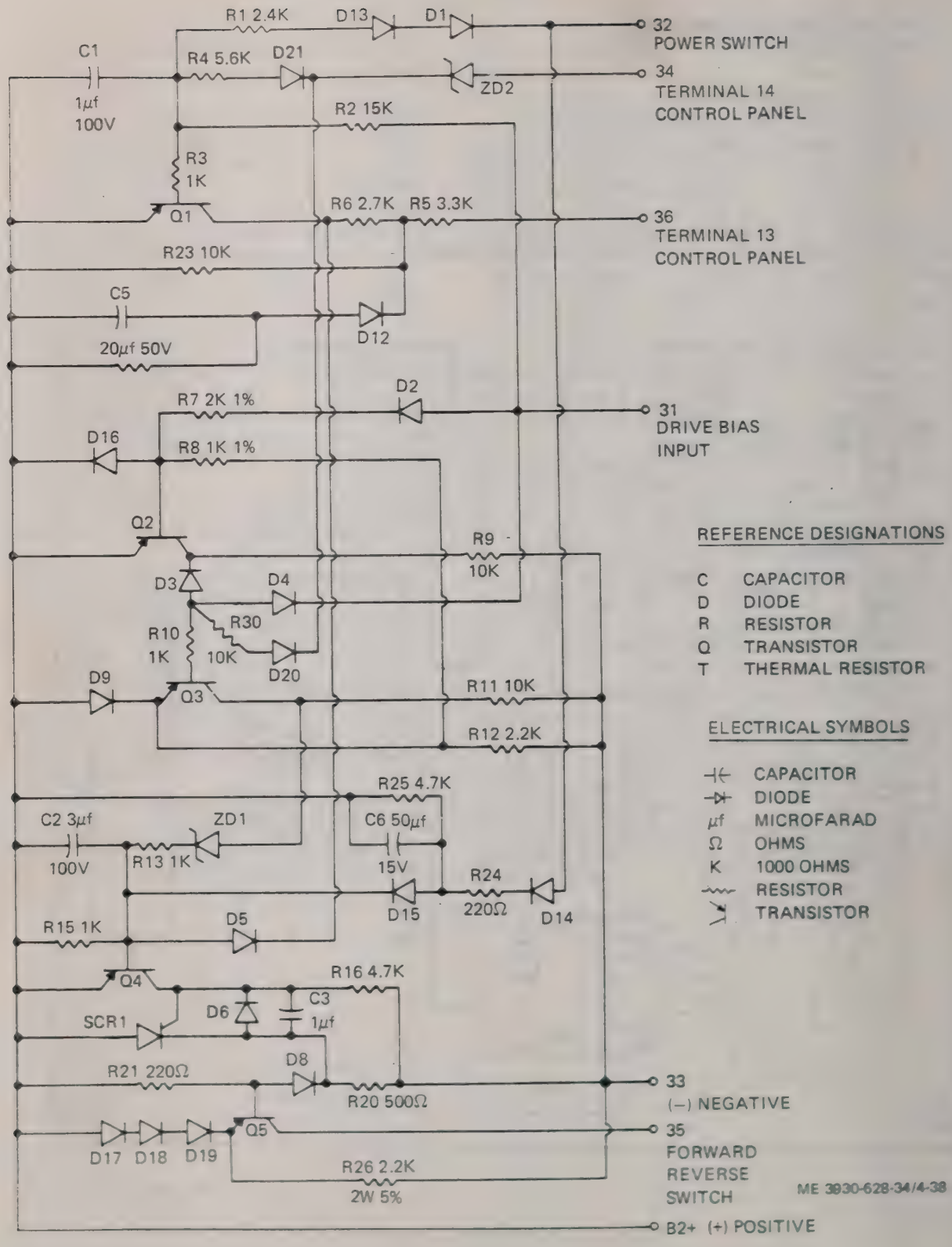


Figure 4-38. Protective circuit board schematic wiring diagram.

(4) *Removal.*

(a) If testing proves protective circuit board e defective, remove control board (*b* above).

(b) Tag and disconnect wires from tective circuit board, remove four screws and ove board.

(5) *Installation.*

(a) Connect wires to proper terminals on tective circuit board.

(b) Install protective circuit board on panel secure with four screws.

(c) Refer to *g* below and install control rd.

g. Installation.

(1) Connect all electrical leads to the control rd.

(2) Refer to figure 4-25 and install the control rd into the truck frame.

(3) Secure in place with three screws and lock hers.

2. Contactor Assembly

a. Description. The contactor assembly (fig. 4- consists of four contactors, one contactor trolling the hydraulic pump operation, one each forward and reverse movement, and one tactor controlled by the emergency stop switch.

(1) The control relay of the contactor box mbly is actuated by closing the ignition switch, ng on the seat, and selecting the desired tion of travel. The actuation of this relay ses its normally open circuits to close, and its mally closed circuits to open. This operation of contacts inserts an economizing resistor in the uit.

(2) Moving the forward and reverse control r to FORWARD selects the forward contactor. ressing the accelerator pedal opens the nor- ly-closed contacts and closes the normally-open tacts of foot switch, one completing the circuit the forward contactor. Current flows through directional control switch, the interlock contacts unted on the reverse contactor, the diode bridge k, the forward contactor coil, the now closed tacts of the foot switch, through the control y contacts, and back to the battery.

(3) As soon as the key switch is closed, the raulic pump contactor is ready to operate. The ng of the switch on the hydraulic control valve age provides a path for current flow. Current is from the battery, through the pump con- or coil, the closed pump switch, and back to the ery. Actuation of the pump contactor closes its main-open contacts permitting current flow the battery through the pump motor back to battery.

b. Disassembly. Refer to figure 4-39 and sassemble the contactor box assembly as follows:

(1) To remove the contactors, proceed as follows:

(2) Remove cover from contactor box. Tag and disconnect all electrical leads.

(3) Remove cable, fuses and bus bars.

(4) Remove screws, lock washers, and washers securing the contactors to the contactor box. Remove the contactors and insulation.

(5) Remove terminal blocks by removing screws and lock washers.

(6) Remove relay by removing the screw securing it to the contactor box.

(7) Remove the screw, washer and lock washer securing the rectifier to the contactor box.

(8) Remove the resistor by removing nuts, washers, lock washers and screws.

(9) Remove the diode and bracket by removing screw, lock washer and nut securing them to the contactor box. Separate the diode and bracket.

(10) Remove nuts, lock washers, washers, and screws to remove the fuse block.

c. Cleaning, Inspection and Repair.

(1) Clean all parts with a cloth dampened with cleaning solvent.

(2) Inspect the contactors for worn or pitted contacts.

(3) Check the springs on the contactors for bends, cracks or other damage which may impair good operation. If any repair is required on the contactors, refer to paragraphs 4-23 and 4-24.

(4) Check all remaining parts for damaged or worn threads, cracks, or other damage which would impair operation.

d. Assembly. Refer to figure 4-39 and assemble the contactor box assembly as follows:

(1) Secure the fuse block to the contactor box with screws, washers, lock washers and nuts. Install fuses.

(2) If the diode was removed from the bracket, secure it in place with nut, washer and lock washer. Mount the bracket and diode in contactor box.

(3) Install the rectifier and secure in place with screw, washer, and lock washer.

(4) Install the resistor in the contactor box and secure with screws, washers, lock washers and nuts.

(5) Secure the relay in place with screw.

(6) Install the terminal blocks and secure in place with screws and lock washers.

Note. In assembling contactor box assembly, do not replace brass screws and attaching parts with steel parts. Install identical parts as were removed.

(7) Place the insulation under the contactors. Secure the contactors in place with screws, washers and lock washers.

(8) Install the cable, fuse and bus bars on the contactors. Tighten screws.

(9) Install contactor box cover.

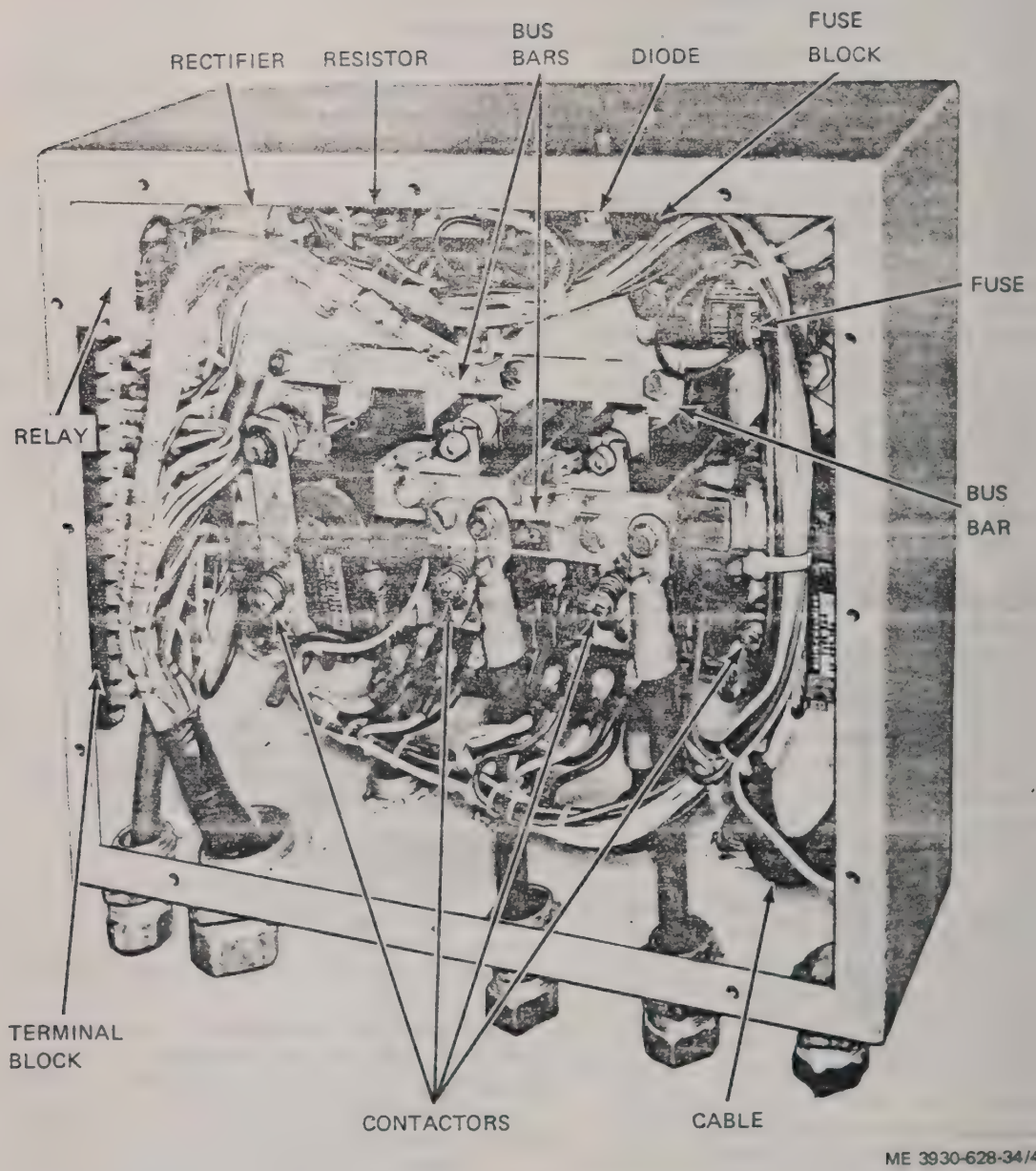


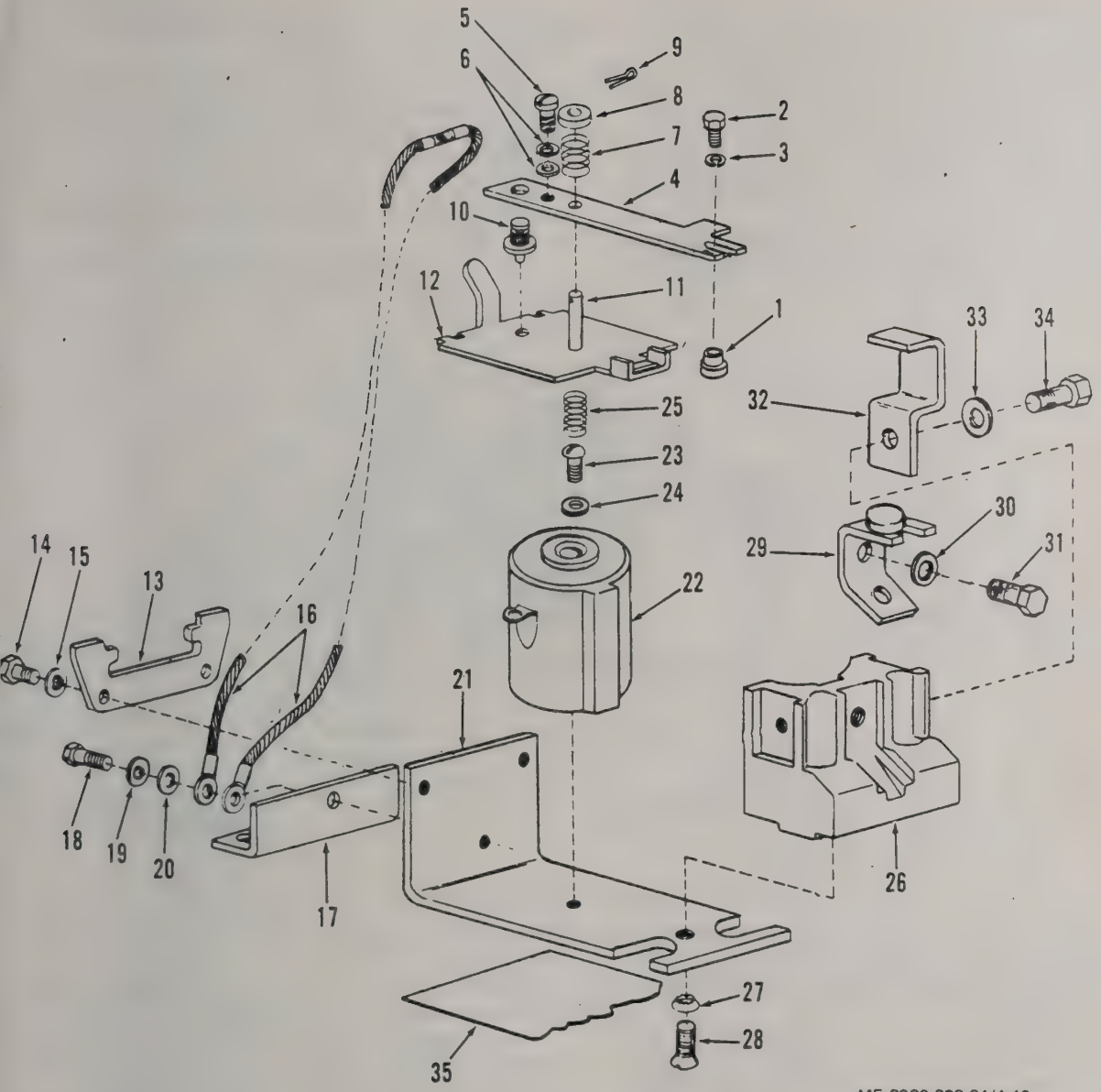
Figure 4-39. Contactor box assembly.

4-23. Hydraulic Pump and Emergency Cutout Contactors

a. Removal. Remove the contactors as outlined in paragraph 4-22. The hydraulic pump and emergency cutout contactors are identical except for the coil (22, fig. 4-40).

b. Disassembly.

(1) Remove screws (5 and 18, fig. 4-40), washers (6 and 20) and lock washers (19) to remove the lead assembly (16).



1. Contact
2. Screw
3. Lock washer
4. Carrier
5. Screw
6. Washer
7. Spring
8. Washer
9. Pin
10. Bearing
11. Pin
12. Armature
13. Retainer
14. Screw
15. Lock washer
16. Lead assembly
17. Terminal
18. Screw
19. Lock washer
20. Washer
21. Yoke
22. Coil
23. Screw
24. Lock washer
25. Spring
26. Block
27. Lock washer
28. Screw
29. Support
30. Washer
31. Screw
32. Bracket
33. Washer
34. Screw
35. Insulation

Figure 4-40. Hydraulic pump and emergency cutout contactor, exploded view.

(2) Remove screw (14) and washer (15) securing the armature retainer (13) to the yoke (21). Remove armature (12) from retainer.

(3) Remove screw (2) and washer (3) and remove contact (1) from carrier (4). Remove cotter pin (9), cup washers (8) and spring (7) and remove carrier (4) from armature pin (11).

(4) Remove the coil (22) by removing spring (25), screw (23) and washer (24).

(5) Remove screw (34), washer (33), bracket (32), screw (31), washer (30) and contact support (29).

(6) The control block (26) is removed by removing screw (28) and lock washer (27).

c. Cleaning and Inspection.

(1) Visually inspect all components for wear or damage that may prevent or impair normal operation. Check for cracked or frayed shunt wires. Replace as necessary.

(2) Check the contactor assemblies for signs of excessive arcing or pitting. Replace worn contacts (1, fig. 4-42).

(3) Refer to figure 4-41 and check the contactor for correct adjustment.

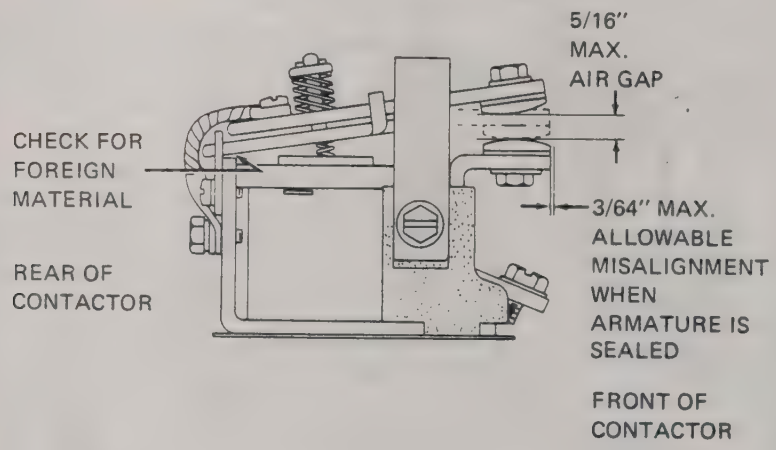

5/16" MAX. AIR GAP
CHECK FOR FOREIGN MATERIAL
REAR OF CONTACTOR
3/64" MAX. ALLOWABLE MISALIGNMENT WHEN ARMATURE IS SEALED
FRONT OF CONTACTOR
ME 3930-628-34/4-41

Figure 4-41. Contactor adjustment (typical).

d. Assembly. Refer to figure 4-40 and assemble the contactor in reverse order of disassembly.

e. Installation. Install the contactor as outlined in paragraph 4-22.

4-24. Forward and Reverse Contactors

a. Removal. Refer to paragraph 4-22*b* for removal.

b. Disassembly. The forward and reverse contactors are connected by a bus bar. Separate contactors by removing screw (39, fig. 4-42), washer (40), and bus bar (41). Refer to figure 4-42 and disassemble the contactors as follows:

(1) Remove lead assembly (17) by removing screws (5 and 18), washers (6 and 19), and lock washer (7).

(2) Remove screws (21) and lock washers (22) securing the armature retainer (20) to the yoke (23). Remove the armature assembly (13).

(3) Remove limit switch (14) by removing screws (15) and washers (16).

(4) Remove cotter pin (10), washer (9), and spring (8) to remove the carrier assembly (4) from the armature.

(5) Remove nuts (2), washers (3) and contacts (1) from the carrier (4) and supports (31 and 35).

(6) Remove spring (30) from the coil core. Remove the screw (28) and washer (29) securing the coil (27) to the yoke (23). Remove the coil.

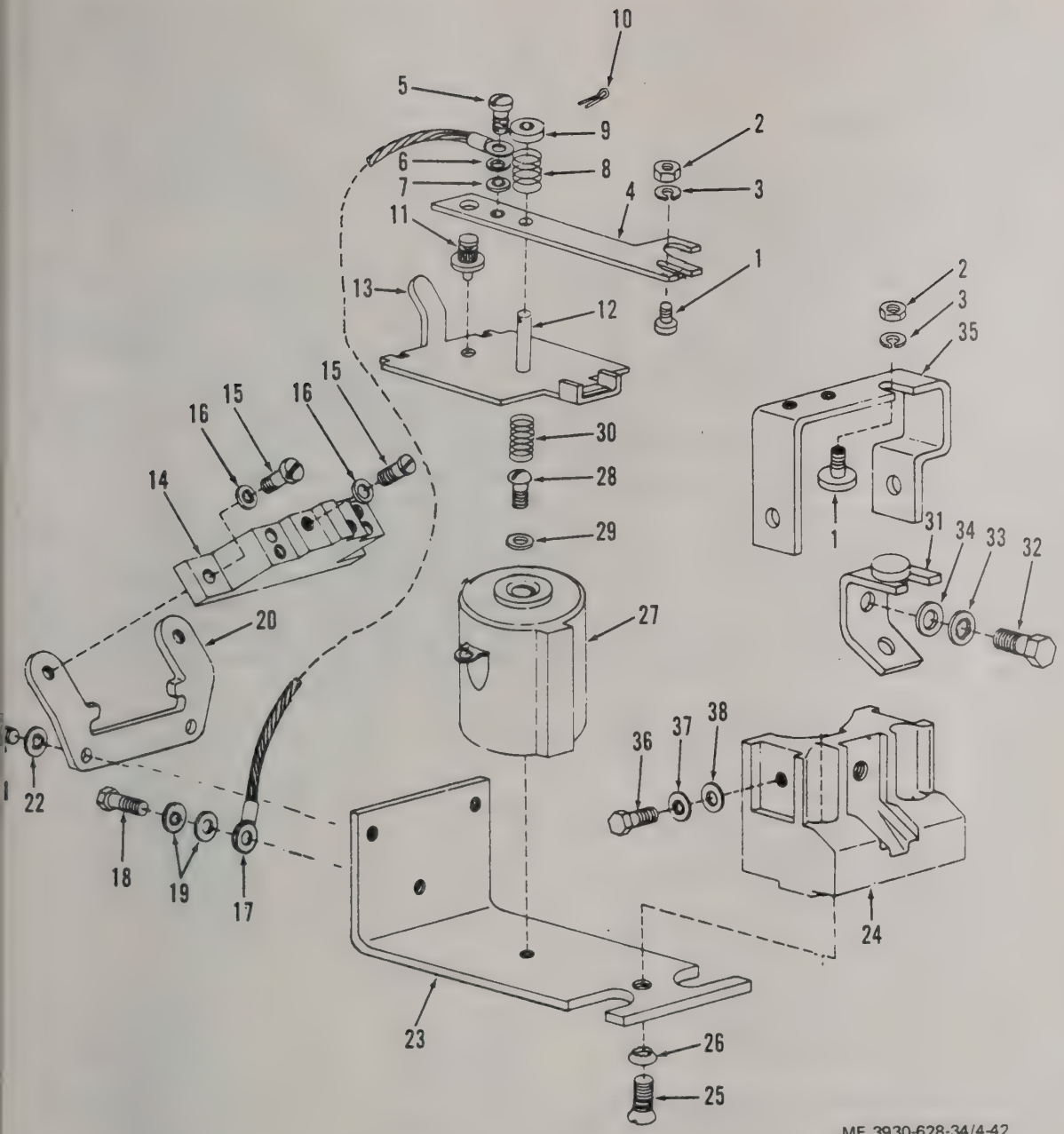
(7) Remove screw (36), washer (37) and lock washer (38) securing the support (35) to the contact block (24).

(8) Remove support (31) by removing screw (32), lock washer (33) and washer (34) from the contact block (24).

(9) The contact block (24) is removed from the yoke by removing screw (25) and lock washer (26).

c. Cleaning and Inspection. Refer to paragraph 4-23 c

d. Assembly. Refer to figure 4-42 and assemble the contactors in reverse order of disassembly.



1. Contact
2. Nut
3. Washer
4. Contact carrier
5. Screw
6. Washer
7. Lock washer
8. Spring
9. Washer
10. Cotter pin
11. Bearing
12. Pin
13. Armature
14. Limit switch
15. Screw
16. Lock washer
17. Lead assembly
18. Screw
19. Washer
20. Switch support
21. Screw
22. Lock washer
23. Yoke
24. Contact block
25. Screw
26. Lock washer
27. Coil
28. Screw
29. Lock washer
30. Spring
31. Support
32. Screw
33. Washer
34. Lock washer
35. Support
36. Screw
37. Washer
38. Lock washer
39. Bus bar
40. Screw
41. Washer

Figure 4-42. Forward and reverse contactor assembly.

e. Installation. Refer to paragraph 4-22 and install the contactor. Connect the two contactors together with bus bar (41, fig. 4-42), screws (39) and washers (40).

4-25. Accelerator Assembly

a. Removal.

(1) Remove the toe plate.

(2) Disconnect wires at plastic plug.

(3) Remove two screws, nuts and lock washers securing the control box to the truck frame.

b. Disassembly. Refer to figure 4-43 and disassemble the accelerator as follows:

(1) Remove screw (17), lock washer (16), cover (15) and gasket (14) from the box (1).

(2) Loosen setscrews (23 and 33) and withdraw the accelerator shaft (9).

(3) Remove screw (5), nut (7) and lock washer (6) and remove flange bearing (8).

(4) Remove spring (32), collar (34), levers (24 and 29) and speed potentiometer (41).

(5) Remove bearings (20) by removing nuts (18), lock washers (19), and screws (35) securing them to the control box (1).

(6) Remove the screw (26), spacer (28), washer (40), lock washer (39) and nut (38) securing the limit switch (27) to the control box bracket.

(7) Remove the screw (43) and lock washer (42) securing the cover standoff (25) from the control box.

c. Cleaning and Inspection.

(1) Clean all metal parts in cleaning compound, solvent (Fed. Spec. P-D-680).

(2) Check all threaded fasteners for stripped or worn threads or other damage.

(3) Inspect the bearings for scoring, nicks, excessive wear and any other defects which might impair operation.

(4) Inspect the spring for wear, lack of spring tension, nicks, dents, or other damage.

(5) Check the limit switch for proper operation.

(6) Replace defective parts as necessary.

d. Assembly. Refer to figure 4-43 and assemble the accelerator as follows:

(1) Install the cover standoff (25) and secure in place with screw (43) and lock washer (42).

(2) Secure the limit switch (27) to the mounting bracket with screws (26), spacers (28), washers (40), lock washers (39) and nuts (38).

(3) With nuts (18), lock washers (19) and screws (35), secure the bearings (20) to the control box (1).

(4) Secure the flange bearing (8) in place with screws (5), nuts (7) and washers (6).

(5) Slide the accelerator shaft (9) through the flange bearing (8) and the first bearing (20). Slide lever (24), spring (32), and collar (34) onto the shaft (9). Slide the shaft into the second bearing (20), tighten the setscrew (33) on collar (34) to secure the shaft in place.

(6) Install the speed potentiometer (41) on the mounting bracket. Mount lever (29) on potentiometer shaft and secure in place with setscrew (30) and jam nut (31). Engage lever (29) with the upper pin on lever (24).

e. Installation.

(1) Mount the speed control box on the vehicle frame with screws, washers and nuts.

(2) Connect all electrical leads and double check for possible wrong wiring connections. Connect plastic plug to harness.

(3) Secure the cover (15, fig. 4-43) and gasket (14) to the control box (1) with wasshers (16) and screws (17).

(4) Install the toe plate.

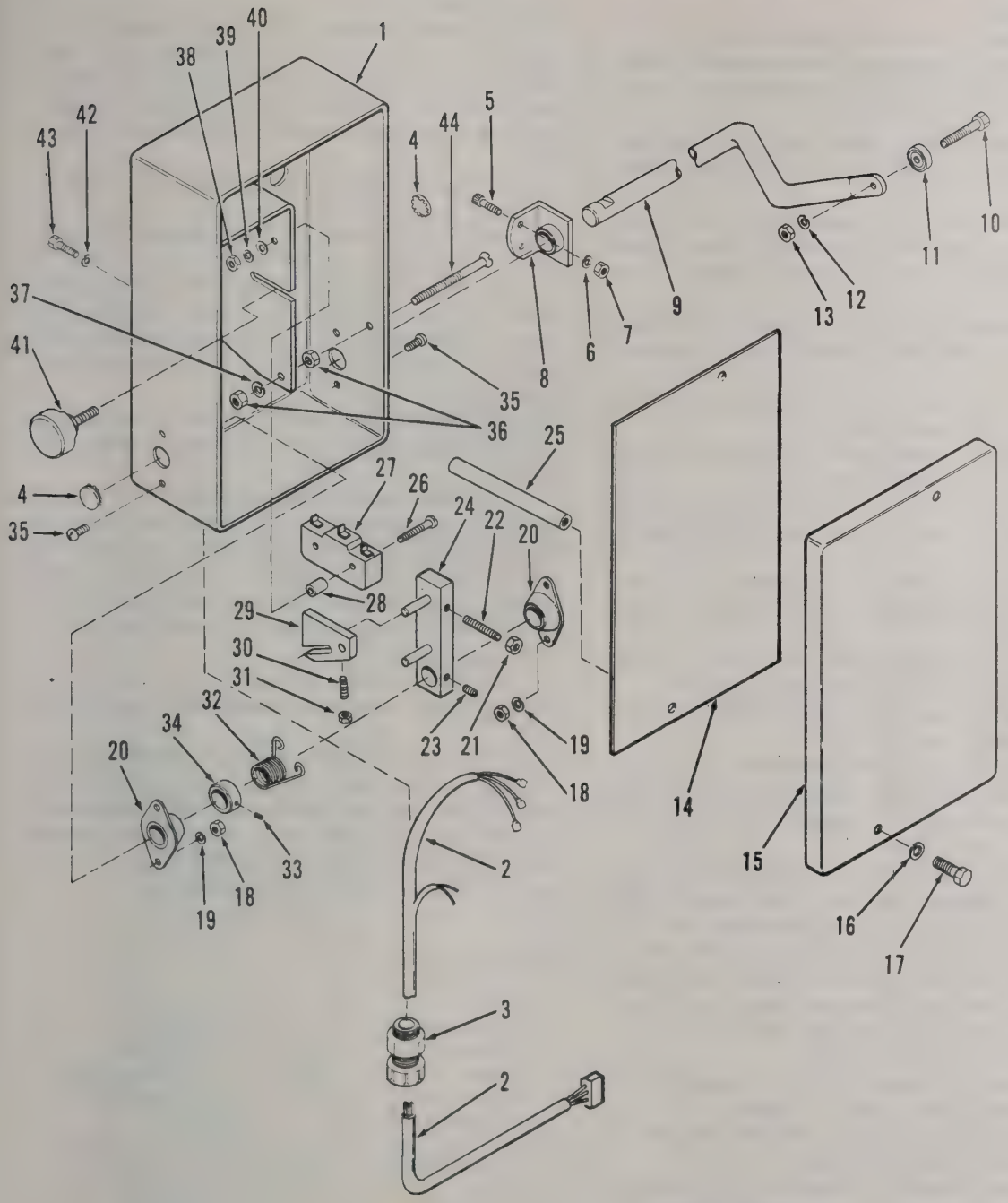
f. Adjustment.

(1) Remove the cover (15, fig. 4-43) and gasket (14) from the control box.

(2) Position the speed potentiometer (41, fig. 4-43) so that it reaches zero resistance 1 / 16-inch before the accelerator bearing makes contact with the toe plate. Move potentiometer (41) in or out of slot of lever (29) to adjust.

KEY to fig. 4-43:

1. Box
2. Cable
3. Connector
4. Plug
5. Screw
6. Lock washer
7. Nut
8. Bearing
9. Shaft
10. Screw
11. Bearing
12. Lock washer
13. Nut
14. Gasket
15. Cover
16. Lock washer
17. Screw
18. Nut
19. Lock washer
20. Bearing
21. Nut
22. Stud
23. Setscrew
24. Lever
25. Standoff
26. Screw
27. Limit switch
28. Spacer
29. Lever
30. Setscrew
31. Nut
32. Spring
33. Setscrew
34. Collar
35. Screw
36. Nut
37. Lock washer
38. Nut
39. Lock washer
40. Washer
41. Potentiometer
42. Lock washer
43. Screw
44. Screw



ME 3930-628-34/4-43

Figure 4-43. Accelerator assembly, exploded view.

4-26. Forward and Reverse Control Switch

a. Removal.

(1) Remove instrument panel cover.

(2) Drive out spring pins from tube which connects forward and reverse control lever to switch shaft. Remove lever and tube.

(3) Remove three screws and lock washers holding switch box assembly to top of instrument panel.

(4) Pull switch box assembly out of panel compartment. Tag and disconnect wires from switch terminals. Remove switch assembly from box.

b. Disassembly. Refer to figure 4-44 and disassemble forward and reverse control switch as follows:

(1) Remove nuts (1), lock washers (2) and washers (3) from studs (4).

(2) Remove bottom plate (5), insulator plate (6), rivnut (7) and tubes (8).

(3) Drive out pin (9). Remove plate (10) and remove studs (4) from upper plate (10). Remove cover (11).

(4) Remove nuts (12), washers (13), lock washers (14) and shorting bar (15) from terminal screws (19).

(5) Unhook springs (16) and remove roller arms (17) from bottom of upper plate (10).

(6) Remove base block (18). Remove screws (19) from base block (26).

(7) Disassemble finger assemblies (20, fig. 4-44) only if parts are to be replaced. Drill out rivet (21). Remove spring (22), support (23, finger (24) and contact strip (25).

(8) Remove nut (27), lock washer (28) and washer (29). Remove bearing (30), washer (31), bushing (33), spacer (32), contact segments (34 and 36), bushing (35), bushing (37 and 39), spacer (38), wheel (40) and top bearing (41) from shaft (42). Note position of counter punch marks on wheel and segments before removal.

c. Cleaning and Inspection.

(1) Clean all metal parts in cleaning compound, solvent (Fed. Spec. P-D-680).

(2) Check threaded fasteners for stripped or worn threads or other damage.

(3) Check bearings (30 and 41, fig. 4-44) for scoring, nicks, excessive wear or other defects.

(4) Check springs (16 and 22) for wear, lack of tension or weakness.

(5) Replace damaged or defective parts.

d. Assembly. Refer to figure 4-44 and assemble the directional control switch as follows:

(1) Assemble shaft as follows: Install the top bearing (41) and insert pin (9) to hold it in position.

(2) Install wheel (40) with wheel pin pointing in same direction as when removed. Notice position of counterpunch mark.

(3) Install bushings (37 and 39), spacer (38), upper contact segment (36), bushing (35) and lower contact segment (34). Bent edges of contact segments must point downward. Counter punch marks on segments must align with mark on wheel (40).

(4) Install bushing (33), spacer (32), washer (31) and bearing (30).

(5) Install washer (29), lock washer (28) and nuts (27). Tighten nut securely.

(6) Install finger assemblies (20) and shorting strips (15) on base blocks (26) and secure with screws (19), washers (13), lock washers (14) and nuts (12). Shorting strip (15) is located against inner nut.

(7) Install roller arms (17) over pins on the bottom of upper plate (10) and hook springs (16) into place.

(8) Align base blocks (18 and 26). Install studs (4) in upper plate (10). Assemble switch by aligning studs (4) with base blocks and placing plates (10 and 5) and insulator (6) over shaft ends.

(9) Install washers (3), lock washers (2) and nuts (1). Tighten nuts securely. Install cover (11).

e. Installation.

(1) Place switch assembly into switch box. Connect wires to switch terminals and secure with nuts.

(2) Align three holes in switch upper plate with those in box and top of instrument panel. Install three screws and lock washers and tighten securely.

(3) Install control lever and tube on switch shaft and drive in two spring pins.

(4) Install instrument panel cover.

KEY to fig. 4-44:

1. Nut
2. Lock washer
3. Washer
4. Stud
5. Bottom plate
6. Insulating plate
7. Rivnut
8. Insulating tube
9. Pin
10. Upper plate
11. Cover
12. Nut
13. Washer
14. Lock washer
15. Shorting bar
16. Spring
17. Roller arm
18. Base block
19. Screw
20. Finger assembly
21. Rivet
22. Spring
23. Finger
24. Support
25. Contact strip
26. Base block
27. Nut
28. Lock washer
29. Washer
30. Bearing
31. Washer
32. Spacer
33. Bushing
34. Contact segment
35. Bushing
36. Contact segment
37. Bushing
38. Spacer
39. Bushing
40. Wheel
41. Bearing
42. Shaft

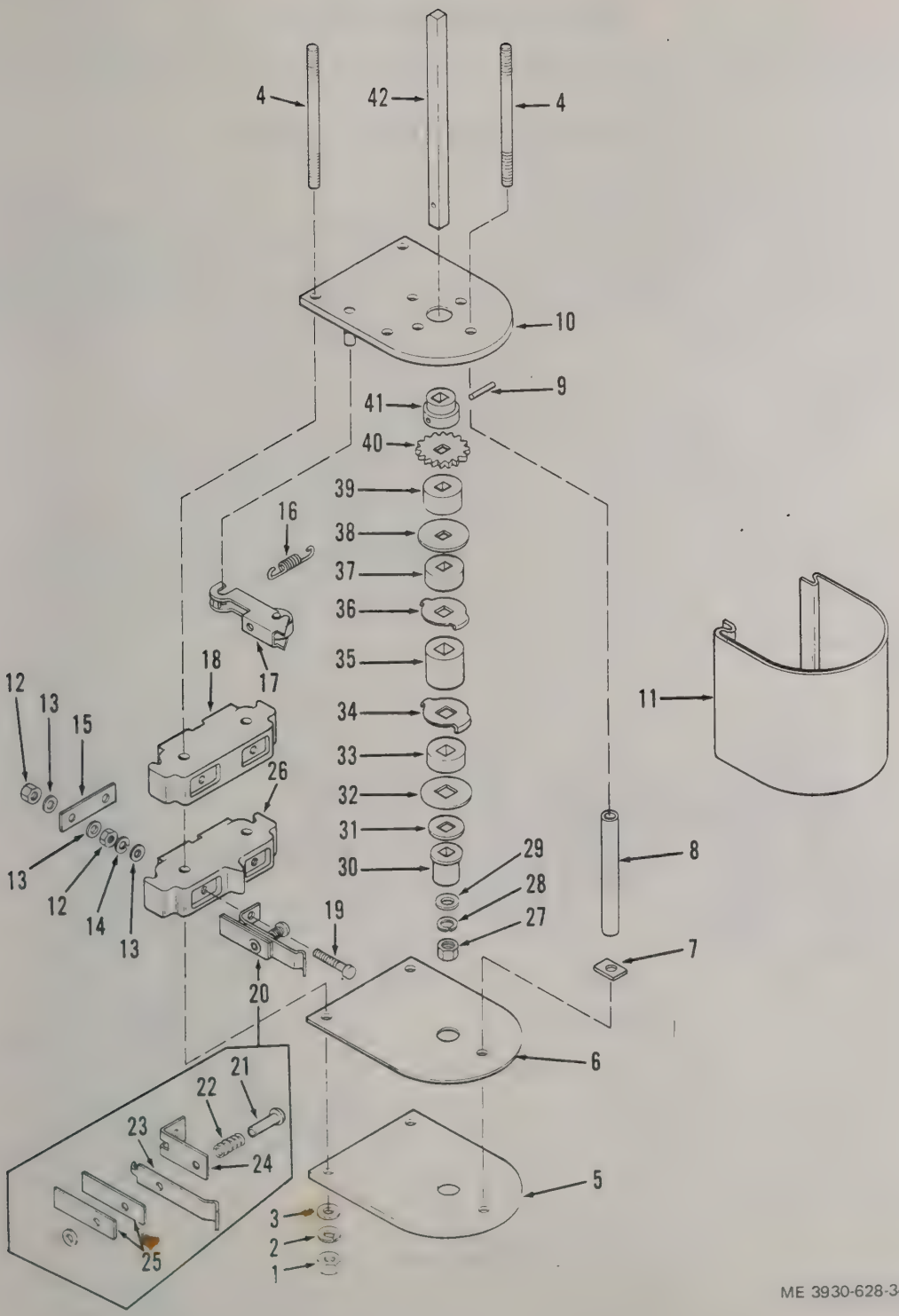


Figure 4-44. Forward and reverse control switch, exploded view.

CHAPTER 5

REPAIR OF THE AXLES

Section I. DRIVE AXLE ASSEMBLY

1. Description

he drive axle assembly consists of a differential sembly, two axle shafts, and two spindles (fig. 5- . The axle shafts connect the differential sembly (first reduction) and the bull gear (second duction) in the drive wheel. The drive wheel rotates around a spindle, which is mounted to the axle housing. The differential assembly consists of a carrier assembly and a case assembly. The carrier assembly is mounted at the center of the drive axle housing and supports the case assembly.

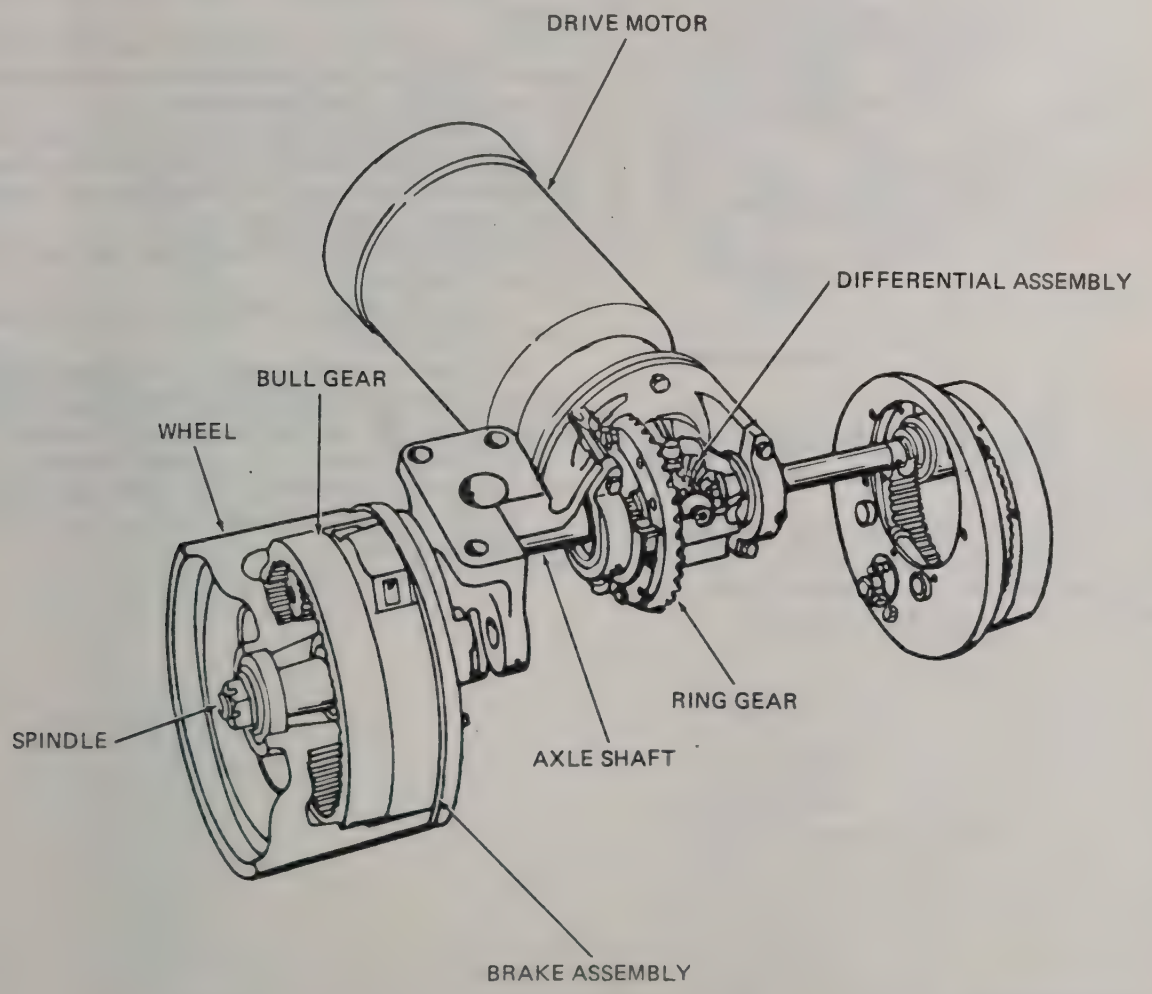


Figure 5-1. Drive unit.

5-2. Axle Shaft

a. Removal and Disassembly.

(1) Remove drive wheel and dust shield (TM 10-3930-628-12).

(2) Remove screws (17), fig. 5-3) and lock washers (18) attaching bearing retainer (19).

(3) Install threaded puller (fig. 5-2) in threaded end of axle shaft and carefully remove shaft with bearing cap and bearing attached.

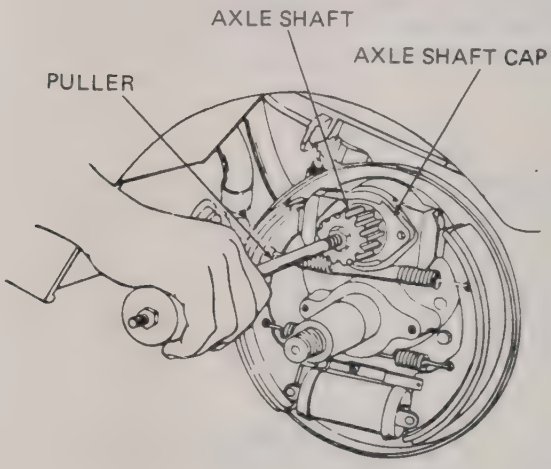


Figure 5-2. Pulling axle shaft.

(4) Straighten locking prongs on key washer (24, fig. 5-3).

(5) Remove nut (25) and slide washers (23 and 24) from axle shaft (16).

(6) Using suitable press, remove bearing cone assembly (21) and cup (22) from shaft.

(7) Remove oil seal (20) and retainer (19) from shaft. Discard oil seal.

b. Cleaning, Inspection and Repair.

(1) Clean all parts with cleaning compound, solvent (Fed. Spec. P-D-680). Dry thoroughly with compressed air.

(2) Inspect all parts for excessive wear or damage.

(3) Replace oil seal. Replace other worn or damaged parts as authorized.

(4) Grease bearings and shaft pinions (TM 10-3930-628-12).

c. Assembly and Installation.

(1) Refer to figure 5-3 and assemble and install axle shaft as follows:

(2) Slide retainer (19), new oil seal (20), and greased bearing assembly (21 and 22) on axle shaft (16).

(3) Align keyed washers (23 and 24) with groove in shaft (16) and slide into position on shaft.

(4) Tighten nut (25) on shaft.

(5) To assure that cone assembly (21) contacts keyed washer (23), hold bearing cup (22) in a fixed position and tap the splined end of the axle shaft (16) with a wooden mallet.

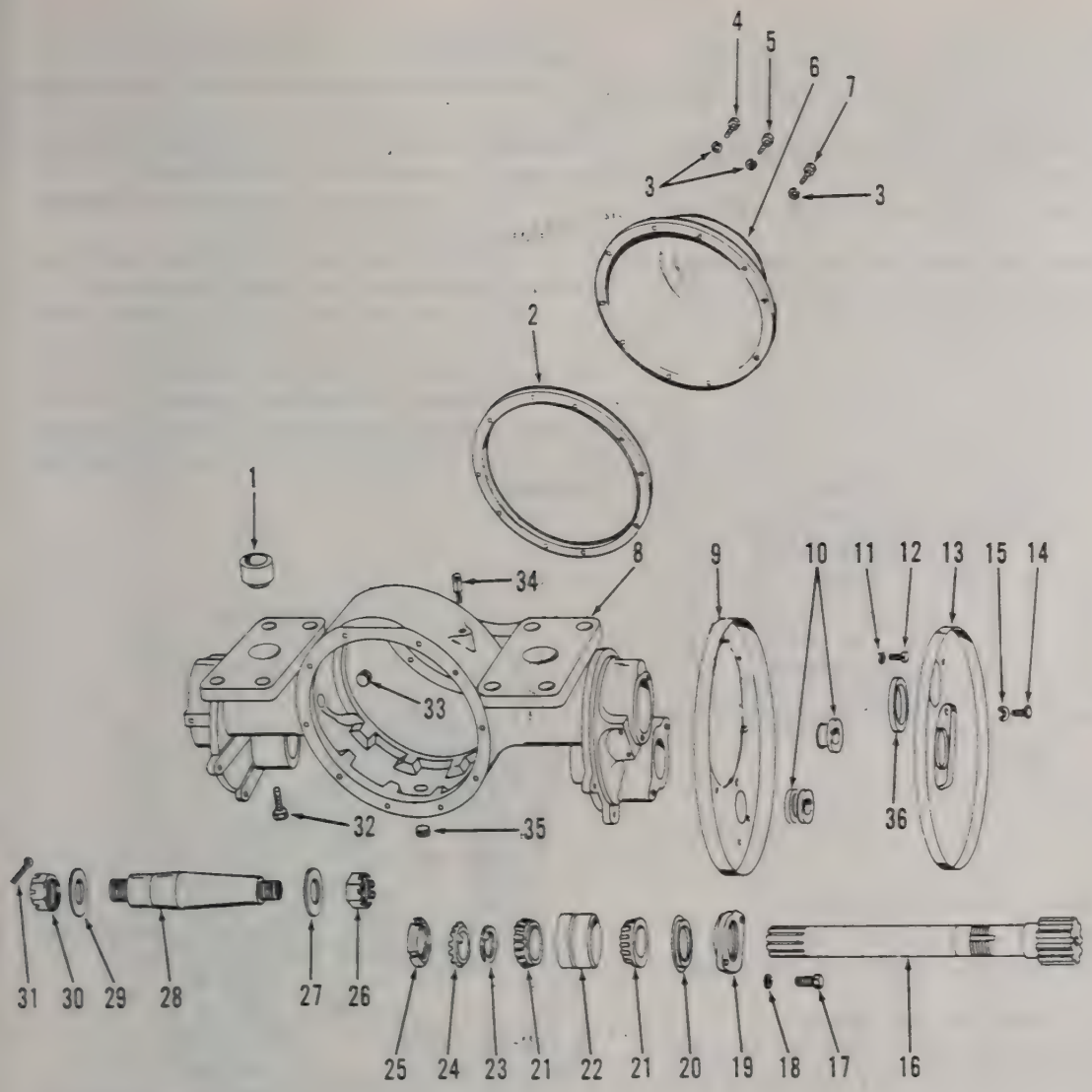
(6) Check cone assembly (21) for free rotation without drag.

Note. A slight amount of end play (0.005 of an inch maximum) is permissible.

(7) Position axle shaft (16) in housing (8) against differential. Align splines and, using a soft mallet, drive axle shaft splines into differential.

(8) Install retainer (19) to drive housing (8) and secure with lock washers (18) and screw (17).

(9) Install dust shield and drive wheel (TM 10-3930-628-12).



ME 3930-628-34/5-3

1. Pin
2. Gasket
3. Lock washer
4. Bolt
5. Bolt
6. Cover
7. Screw
8. Housing
9. Plate
10. Plug
11. Lock washer
12. Bolt
13. Dust shield
14. Screw
15. Lock washer
16. Axle shaft
17. Screw
18. Lock washer
19. Bearing retainer
20. Oil seal
21. Cone assembly
22. Bearing cup
23. Keyed washer
24. Keyed, external tooth, washer
25. Nut
26. Nut
27. Flat washer
28. Spindle
29. Flat washer
30. Nut
31. Cotter pin
32. Bolt
33. Plug
34. Breather
35. Plug
36. Oil seal

Figure 5-3. Drive axle housing and shaft, exploded view.

5-3. Spindle

a. Removal.

(1) Remove drive wheel assembly and dust shield (TM 10-3930-628-12).

(2) Refer to figure 5-3 and remove spindle from housing as follows:

(3) Loosen self-locking nut (26) approximately three turns.

(4) Install suitable puller (fig. 5-4) and remove spindle (28, fig. 5-3) from axle part way until spindle is loose in housing.

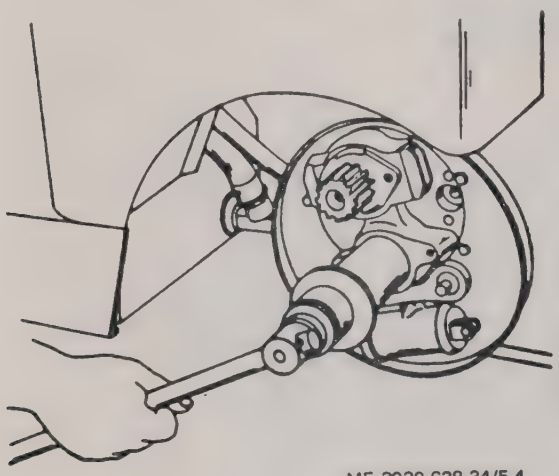


Figure 5-4. Removing spindle.

(6) Remove self-locking nut (26) and flat washer (27) from spindle. Using puller, pull spindle from axle.

b. Cleaning, Inspection and Repair.

(1) Clean all parts with cleaning compound, solvent (Fed. Spec. P-D-680). Dry thoroughly with compressed air.

(2) Inspect spindle and attaching parts for damage.

(3) Replace damaged parts as authorized.

c. Installation.

(1) Refer to figure 5-3 and install spindle as follows:

(2) Aline spindle (28) in housing (8) and secure it to inside of housing with washer (27) and self-locking nut (26). Tighten nut until spindle is completely seated in axle.

(3) Install dust shield and drive wheel (TM 10-3930-628-12).

5-4. Differential Assembly

a. Removal. Refer to paragraph 2-8 and remove drive motor and axle. Refer to paragraph 2-6 and remove drive motor.

b. Disassembly.

(1) Remove drive wheels from axles (TM 10-3930-628-12).

(2) Remove axle shafts (para 5-2 *a*) and drain lubricant from axle housing. Refer to paragraph 4-2 and remove drive motor and differential from axle and differential from drive motor.

(3) Refer to figure 5-6 and remove differential assembly from carrier as follows:

(a) Mark caps and differential carrier to provide identification for proper installation.

(b) Remove lock wire (11) and remove bolts (10), screws (3) and locks (12) from carrier. Remove bearing caps (4) from carrier.

(c) Remove differential assembly (15) with attached adjusting nuts, bearings, and bearing cups (fig. 5-5) and place in clean area for further disassembly.

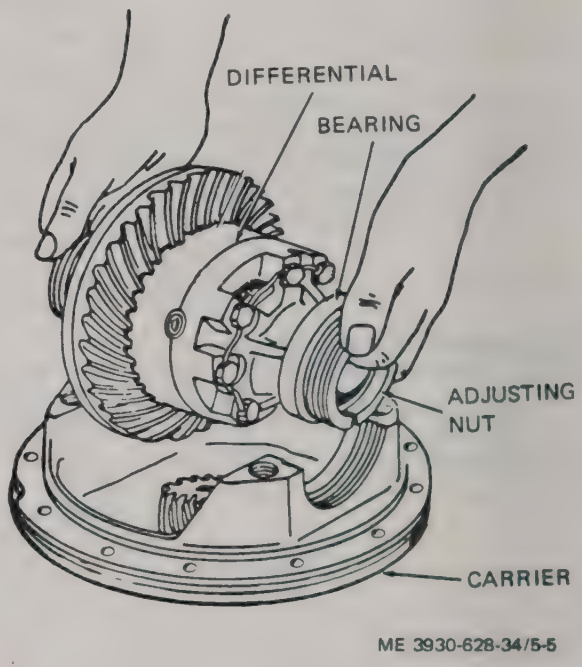


Figure 5-5. Removing differential from carrier.

(d) Remove lock wire (13, fig. 5-6) and screw (14) attaching ring gear portion of ring gear and pinion (5) to flanged case half. Remove ring gear from differential assembly (15). Remove pins (26) from ring gear.

Note. Ring gear and pinion (5) are a matched set.

(6) Refer to figure 5-6 and disassemble differential assembly (15) as follows:

(a) Remove adjusting nuts (6) and, using bearing puller, remove side bearing cones (7) from case halves (21).

(b) Remove side bearing cups (8).

(c) Remove lock clips (23) and screws (22) lding halves (21) together and remove plain case lf.

Note. One case half is flanged and the other plain. se halves must be marked for proper assembly.

(d) Remove pinion gear thrust washers (16), and pinion gears (17) from pin (18). Remove pin (24).

(e) Remove side gear thrust washers (20), side gears (19), and cross pin (18).

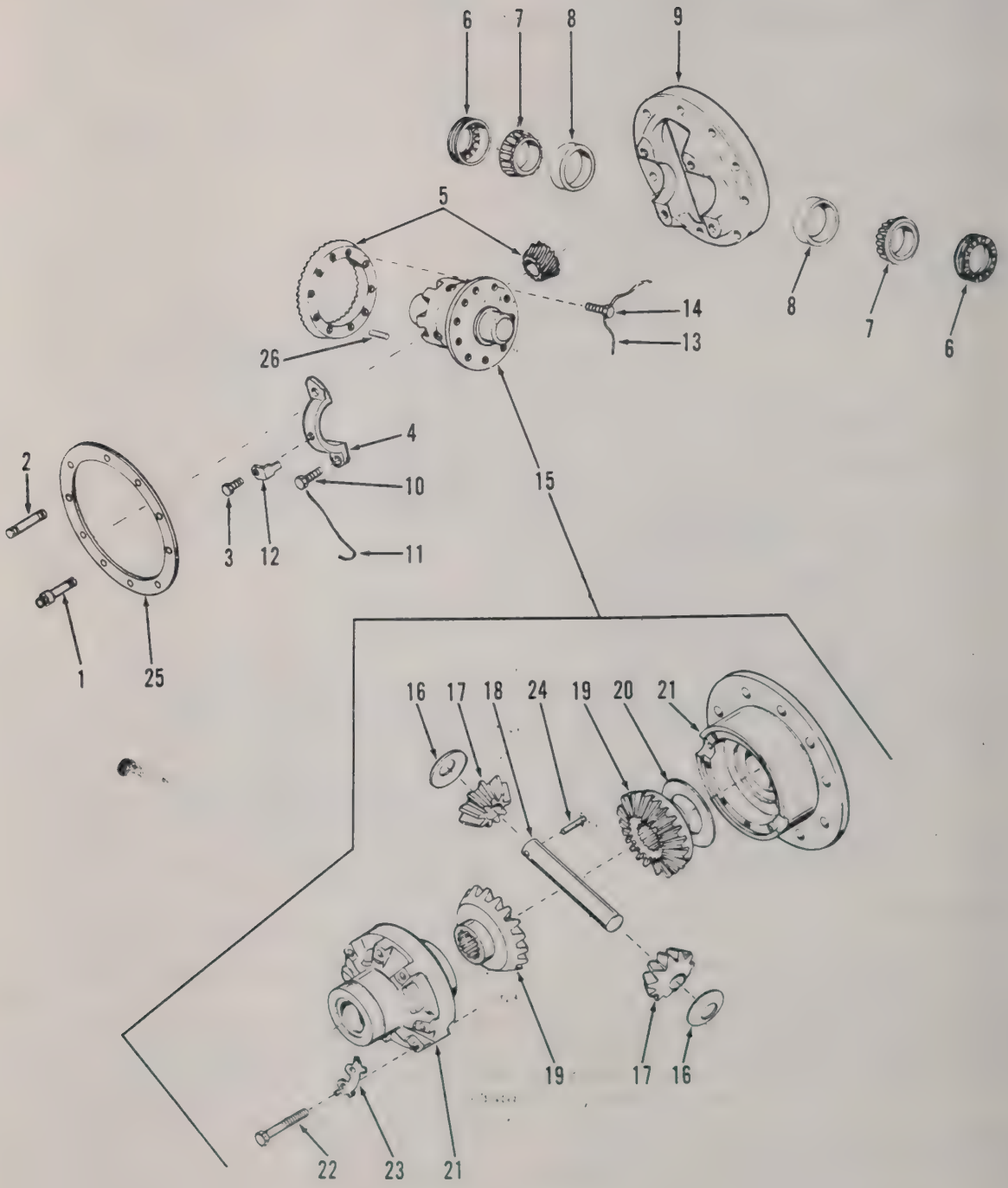


Figure 5-6. Differential assembly, exploded view.

KEY to fig. 5-6:

1. Stud
2. Stud
3. Screw
4. Bearing cap
5. Ring gear and pinion
6. Adjusting nut
7. Side bearing cone
8. Side bearing cup
9. Carrier
10. Bolt
11. Lock wire
12. Lock
13. Lock wire
14. Screw
15. Differential assembly
16. Thrust washer
17. Pinion gear
18. Cross pin
19. Side gear
20. Thrust washer
21. Case assembly
22. Screw
23. Lock clip
24. Pin
25. Gasket
26. Spring pin

b. Cleaning, Inspection and Repair.

(1) Clean all parts with cleaning compound, vent (Fed. Spec. P-D-680). Dry thoroughly with mpressed air.

(2) Inspect all parts for cracks, chips, excessive ar or other damage.

(3) Pinion and ring gear must be replaced as a .

(4) Replace all oil seals and gaskets. Replace other parts as authorized.

c. Assembly and Adjustment.

(1) Refer to figure 5-6 and assemble differential assembly as follows:

(2) Assemble differential assembly (15) as lows:

(a) Install pin (24) in flanged case half. sition pin (18), side gears (19), and side gear rust washers (20) in flanged case half.

(b) Install pinion gears (17), and pinion ar thrust washers (16) on pin (18). Check for oper gear mesh. Install pin (24).

(c) Align plain and flanged case halves (21) atch marks and join case halves. Secure halves th screws (22) and lock clips (23).

(d) Press side bearing cups (8) and side aring cones (7) on both halves of case (21) and stall, but do not tighten, adjusting nuts (6).

(3) Assemble carrier assembly as follows:

(a) Install pins (26) in flange. Install ring ar portion of ring gear and pinion (5) on flanged se half (21) and secure with screws (14) and lock re (13).

(b) Position differential assembly in carrier) and install bearing caps (4) and secure with four bolts (10). Do not tighten bolts. Caps must be installed as marked at disassembly.

(c) Turn adjusting nut on ring gear side of differential to right to loosen as far as possible.

(d) Turn adjusting nut on opposite side to right to tighten as far as possible.

(e) Wrap a cord around differential case and attach a spring scale to loose end of cord. Pull gradually on scale and note effort required to rotate differential assembly. Case should start to rotate at less than 3 pounds pull.

(4) *Measure for shim thickness.*

(a) Install carrier assembly on drive motor (9, fig. 4-1) without shims (6). Place a piece of bar stock approximately 0.125 inch thick on pinion gear (fig. 5-7). Measure thickness of bar stock accurately.

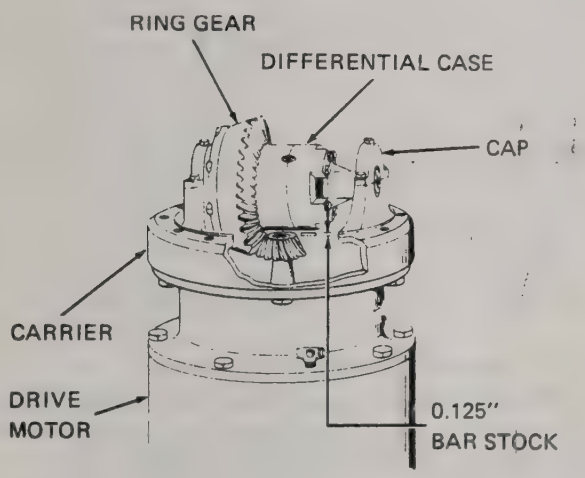


Figure 5-7. Measuring for shims.

(b) Use a feeler gage and measure the distance between the bar stock and the differential case. Add thickness of bar stock to feeler gage thickness.

(c) Check pinion and ring gear for an etched measurement. They must be the same. If they are marked with a plus (+), add the measurement to 0.156. If marked with a minus (—), subtract from 0.156.

(d) Subtract sum of bar stock and feeler gage thickness from total found in (c) above. This difference will be the shim thickness required.

(e) Remove carrier from drive motor, install required shims (6, fig. 4-1) to total thickness required. Install carrier assembly on motor and secure with four screws and lock washers.

(5) *Check backlash.*

(a) Using a dial indicator as shown on figure

5-8, check ring gear for backlash at four equally spaced positions on ring gear. Backlash should be between 0.005 and 0.010 inch.

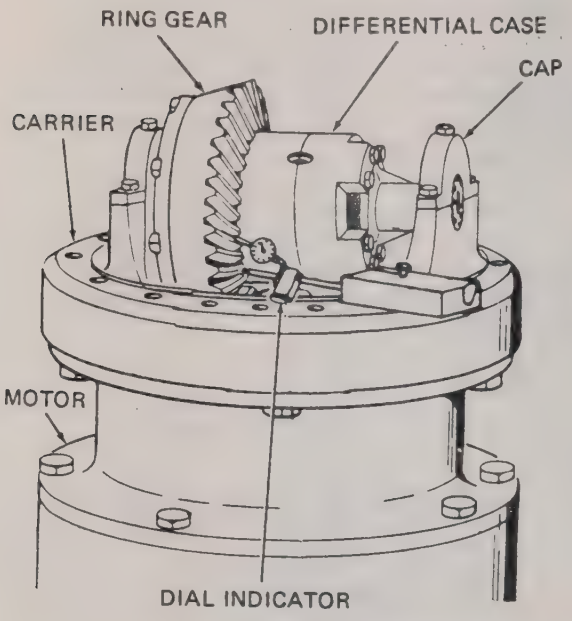


Figure 5-8. Checking backlash.

(b) To increase backlash loosen bearing adjusting nut nearest to ring gear and tighten opposite nut. To decrease loosen adjusting nut farthest from ring gear and tighten opposite nut.

Note. When adjusting backlash, turn adjusting nuts exact equal distance to maintain proper bearing preload.

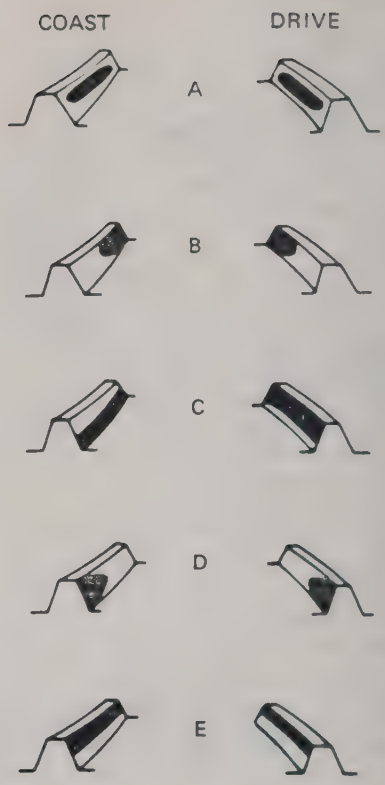
(6) *Check gear teeth pattern.*

(a) Coat entire ring gear with Prussian Blue or white lead.

(b) Rotate ring gear (2) several times, holding back on pinion to create load effect.

(c) Inspect teeth of pinion and compare with figure 5-9. Tooth bearing should start 1 / 32 to 1 / 16 of an inch from the top of the tooth and continue down to an equivalent distance from the bottom of the tooth.

Note. Do not be concerned about the amount of paint removed. This will vary with load applied.



A – CORRECT ADJUSTMENT.
B – HEAVY CONTACT ON TOE OF TOOTH. TO CORRECT MOVE RING GEAR AWAY FROM PINION. MOVE PINION TOWARDS RING GEAR TO AGAIN SECURE CORRECT BACKLASH.
C – BEARING TOO LOW. HEAVY CONTACT ON FLANK OF TOOTH. TO CORRECT THIS MOVE PINION AWAY FROM RING GEAR UNTIL CONTACT COMES TO FULL WORKING DEPTH OF GEAR TOOTH WITHOUT BREAKING CONTACT AT FLANK. MOVE RING GEAR TOWARDS PINION TO SECURE PROPER BACKLASH.
D – HEAVY CONTACT AT HEEL OF TOOTH. TO CORRECT MOVE RING GEAR TOWARDS PINION. MOVE PINION AWAY FROM GEAR TO OBTAIN CORRECT BACKLASH.
E – SHOWS HEAVY CONTACT ON TOOTH FACE. MOVE PINION TOWARDS GEAR UNTIL CONTACT COVERS FLANK OF TOOTH WITHOUT BREAKING CONTACT AT FACE. MOVE GEAR AWAY FROM PINION TO SECURE CORRECT BACKLASH.

Figure 5-9. Differential gear tooth patterns.

(d) Secure caps with locks (12, fig. 5-6), and screws (3 and 10). Secure screws with lock wire (11).

(6) Refer to paragraph 4-28 and install drive motor with carrier attached on drive axle.

(7) Install axle shafts (para 5-2 *c*) and lubricate (LO 10-3930-628-12).

(8) Install dust shield and drive wheel assemblies (TM 10-3930-628-12).

Section II. STEERING AXLE

5-5. Description

The cruciform, trunnion mounted steering axle is mounted in lubricated self-aligning sleeve bearings. A manually operated control unit pivots an arm that moves tie rods connected to the spindles, on which the rear wheels are mounted.

5-6. Removal

a. Refer to figure 5-10 and remove axle as follows:

b. Raise rear end of truck with suitable hoist to a height at which access can be obtained to the steering axle. Support in this position with blocks or other authorized safe means. Remove wheels (TM 10-3930-628-12).

c. Place a suitable jack under steering axle and raise it slightly to relieve stress on mounting bearings.

d. Disconnect steering tie rod assembly (18) from ball stud on pivot arm (26) by removing cotter pin (16) at end of tie rod assembly (18) and loosening adjusting plug (17).

e. Loosen adjusting screw nut (2) and back off adjusting screw (1) to free axle.

f. Remove screws (4), lock washers (5), and nuts (6) attaching bearing housings (9) to trunnion blocks.

g. Slowly lower axle assembly, with tie rods attached, to ground.

h. Remove spacers (7 and 8) from bearing housings (9).

5-7. Disassembly

a. Refer to figure 5-10 and disassemble axle as follows:

b. Remove and disassemble both tie rod assemblies as follows:

(1) Remove cotter pin (12), nut (13), and flat washer (14) from bottom of tie rod end (15).

(2) Remove cotter pin (16) and loosen adjusting plug (17).

(3) Remove tie rod assemblies (18).

(4) Remove adjusting plug (17), ball seat (19), spring (20) from tie rods (21).

(5) Slip cover (22) from tie rod end (15).

(6) Loosen jam nut (23) on tie rod end (15) and remove tie rod end from tie rods (21).

(7) Remove lubrication fittings (24 and 25) from rods (21) and tie rod ends (15).

c. Disassemble bearing housing (9) as follows:

(1) Remove bearing (11) from housing (9).

(2) Remove lubrication fitting (10) from top of housing.

d. Remove pivot arm (26) from steering axle (27) as follows:

(1) Remove staked nut (28), washer (29), seal (30) and bearing cone (31).

(2) Remove pivot arm (26) from axle and bearing cup (32) and remove bearing cone (33) and seal (34) from pivot arm (26).

(3) Remove bearing cups (32 and 35) and retaining ring (36) from axle if replacement is necessary.

(4) Remove adjusting screws (37 and nuts (38) from pivot arm (26).

e. Remove king pins (39) and spindles (40 and 41) as follows:

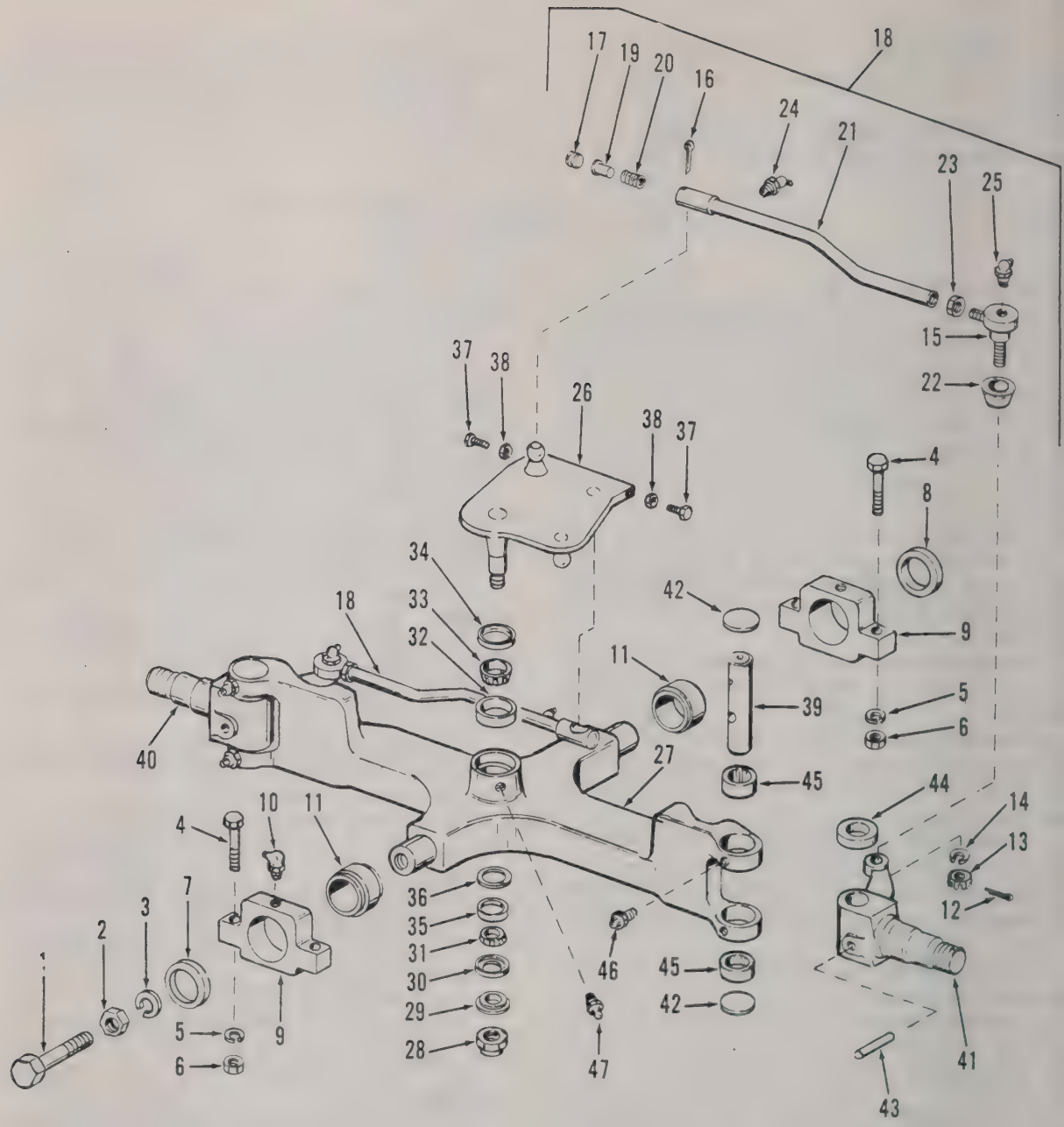
(1) Remove expansion plugs (42).

(2) Remove pins (43) and tap king pins (39) from spindles (40 and 41).

(3) Remove spindles from axle. Remove bearings (44).

(4) Press out needle bearings (45) from axle.

(5) Remove lubrication fittings (46 and 47).



1. Adjusting screw
2. Lock nut
3. Lock washer
4. Screw
5. Lock washer
6. Nut
7. Front spacer
8. Rear spacer
9. Bearing housing
10. Lubrication fitting
11. Sleeve bearing
12. Cotter pin
13. Nut
14. Washer
15. Rod end
16. Cotter pin
17. Adjusting plug
18. Tie rod assembly
19. Ball seat
20. Spring
21. Tie rod
22. Cover
23. Jam nut
24. Lubrication fitting
25. Lubrication fitting
26. Pivot arm
27. Steering axle
28. Nut
29. Washer
30. Grease seal
31. Bearing cone
32. Bearing cup
33. Bearing cone
34. Grease seal
35. Bearing cup
36. Retaining ring
37. Adjusting screw
38. Lock nut
39. King pin
40. Spindle, R. H.
41. Spindle, L. H.
42. Expansion plug
43. Pin
44. Bearing
45. Needle bearing
46. Lubrication fitting
47. Lubrication fitting

Figure 5-10. Steering axle, exploded view.

-8. Cleaning, Inspection and Repair

a. Clean all parts with cleaning compound, olvent (Fed. Spec. P-D-680).

b. Inspect all moving parts, bearings, and at- aching parts for wear, corrosion or other damage.

c. Worn or deteriorated parts must be replaced as uthorized.

-9. Installation

a. Refer to figure 5-10 and assemble and install ne steering axle as follows:

b. Install king pins (39) and spindles (40 and 41) s follows:

(1) Install needle bearings (45) in axle. Align ole in needle bearings with lubrication hole in xle. Install lubrication fittings (46).

(2) Align spindles (40 and 41) and bearings 44) in axle and tap in king pins (39).

(3) Align king pins (39) in spindle (40 and 41) nd tap in spring pins (43) to secure king pin.

(4) Install expansion plugs (42).

(5) Lubricate assembly (LO 10-3930-628-12).

c. Install pivot arm (26) in axle (27) as follows:

(1) Install lubrication fitting (47) and pack earing cones (31 and 33) with grease (GAA).

(2) Install retaining ring (36) and bearing ups (32 and 35) in axle (27), if they are removed.

(3) Install seal (34) and press bearing cone 33) on pivot arm (26).

(4) Install pivot arm (26) in axle (27), firmly eating bearing cone (33) in bearing cup (32).

(5) Press bearing cone (31) into bearing cup 35) at bottom of axle.

(6) Install new seal (30) and slide washer (29) n pivot arm (26). Secure assembly with nut (28). Preload bearings as follows:

(a) Use torque wrench to tighten nut (28) nd note torque reading while advancing cone oward seated position. Torque will increase noticeably when bearing cone starts to seat. Continue tightening nut until torque reading is 15-25 foot-pounds greater than before noticeable ncrease.

(b) Check rotational bearing torque by otating pivot arm (26) back and forth several imes. Rolling torque reading must be 15-25 inch-pounds.

(c) If rolling torque is below 15 inch-pounds, tighten nut (28) an additional 5 foot-pounds and repeat rolling torque test. Repeat procedure until rolling torque is within specifications.

(d) If rolling torque exceeds 25 inch-pounds, back off nut (28) one full turn. Stroke pivot shaft nd with soft mallet to unseat bearings and repeat procedure above until rolling torque reading is correct. This procedure applies to both new and re-used bearings.

(e) Stake nut (28) to hold position.

(7) Using fitting (47), lubricate cavity with grease (LO 10-3930-628-12).

d. Install lubrication fittings (10), bearings (11), and spacer (8) in housings (9). Install assembled housings on axle.

e. Lubricate housing (9) per LO 10-3930-628-12.

f. Assemble and install tie rods (18, fig. 5-10) as follows:

(1) Install lubrication fittings (24 and 25) on rods (21) and tie rod ends (15).

(2) Install tie rod ends (15) in rods (21) and tighten jam nuts (23).

(3) Install covers (22) on tie rod ends (15).

(4) Install adjusting springs (20), ball seats (19) and plugs (17) in tie rods (21).

(5) Install tie rods on spindles (40 and 41) and pivot arm (26).

(6) Adjust plug (17) by tightening until all end play is just removed. Continue tightening plug about one more turn to align cotter pin holes and compress spring. Secure plug with cotter pin (16).

(7) Secure tie rod ends (15) to axle with flat washers (14, nuts (13), and cotter pins (12).

(8) Lubricate tie rod ends (15) and rods (21) (LO 10-3930-628-12).

5-10. Installation

a. Install axle assembly in place and secure bearing housings (9, fig. 5-10) to trunnion blocks with screws (4), lock washers (5), and nuts (6). Leave nuts (6) loose.

b. Push entire axle assembly against rear spacer (8). Install spacer (7) in housing. Install adjusting screw (1) and lock nut (2) with screw through frame and against spacer (7). Bearings and spacers must be concentrically seated along axis. Tighten adjusting screw (1) to 10-15 foot pounds. Hold adjusting screw (1) and tighten lock nut (2) to 90-100 foot pounds. Tighten nuts (6) to 90-100 foot-pounds.

c. Refer to TM 10-3930-628-12 and connect steering drag link to steering axle.

d. Refer to TM 10-3930-628-12 and install wheels on axle.

5-11. Adjustment

a. Refer to TM 10-3930-628-12 for adjustment procedures.

b. After adjustment, remove blocks and lower truck to ground.

CHAPTER 6

BRAKE, WHEEL, AND TIRE REPAIR INSTRUCTIONS

Section I. SERVICE BRAKE

6-1. Description

The hydraulic brake system is of the full floating, self-centering, self-adjusting type which consists of a mechanically actuated master cylinder transmitting hydraulic pressure through heavy duty brake lines to wheel cylinders. The wheel cylinders are of the double-ended type, with actuating links extending from each end of the cylinders. The links transmit movement from the cylinders to the brake shoes. The top of each shoe moves freely in a wear plate, while the bottom of the shoe transfers movement from the hydraulic wheel cylinders. Wear adjustment for brake linings is made automatically in normal use by the self-adjusting mechanism. The shoes are held against the brake wear plates, wheel cylinder links, and adjusting eccentrics by tension springs, which maintain the shoes in equilibrium.

6-2. Brake Shoes

a. Removal. Refer to TM 10-3930-628-12 for removal procedures.

b. Repair.

(1) Minor charring, dirt, or grease on brake linings (not grease soaked) should be remedied by buffing with sand paper or grinding.

(2) Clean shoes with compressed air and dry cloth to prevent damaging shoes or linings.

Caution: **Whenever handling brake shoes, be careful not to get grease or dirt on brake linings as serious damage will result.**

c. Replacement. Brake shoes employ bonded lining. When replacement becomes necessary, a similar type of lining must be installed. Replace shoes (TM 10-3930-628-12) when the following have occurred:

(1) Drums are resurfaced.

(2) Lining is worn to shoe table or within 1 / 16 inch thickness.

(3) Grease or hydraulic fluid has soaked linings, causing brakes to grab or pull to one side.

(4) Charred or burned linings.

(5) Lining scored deeply.

(6) Brake shoe table worn, twisted or out-of-round.

(7) Shoe is cracked.

d. Installation. Refer to TM 10-3930-628-12 for installation procedures.

6-3. Brake Drum

a. Removal and Cleaning. Refer to TM 10-3930-628-12 for removal and cleaning procedures.

b. Inspection and Repair.

(1) Check inside diameter of brake drum at 45 degree intervals, around circumference, using a micrometer or diameter bar and thickness gages. If diameter measurements difference exceeds 0.010 inch or radius difference exceeds 0.005 inch, resurface drum.

(2) Examine drum for scoring or heat checking. Resurface drum if score marks can be felt or any heat checking can be seen. Heat check cracks form cutting edges, which quickly shave off lining surfaces.

(3) Check drums for "bell mounted" or "barrel shaped" wear by placing drum on drum lathe and advancing tool until it contacts drum at its high points. Then advance tool to contact low points. Measure the difference and resurface the drum, if difference exceeds 0.005 inch (radius).

(4) If drum requires resurfacing, proceed as follows:

(a) Resurface in pairs.

(b) Machine to same diameter. Do not exceed 11.0 + 0.010 inch diameter. Replace wheel if diameter exceeds this dimension.

(c) Finish grind or hone to remove tool marks from drum. Marks will cause rapid wear of lining if roughness remains.

(5) If drum does not require resurfacing, polish with fine emery cloth to remove discolorations or old lining residue.

c. Installation. Refer to TM 10-3930-628-12 for installation procedures.

6-4. Wheel Cylinder

a. Description. The hydraulic wheel cylinder houses two opposed pistons, which actuate two opposed brake shoes. Pistons, rubber cups, and springs are held in the cylinder by pressure from the brake shoes. Open ends of the cylinder are protected by rubber boots.

b. Removal. Refer to TM 10-3930-628-12 for removal procedures.

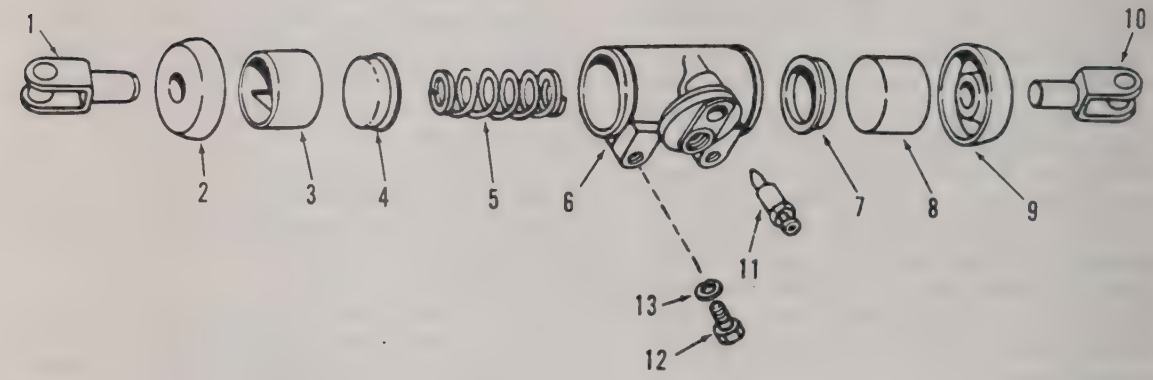
c. Disassembly.

(1) Refer to figure 6-1 and disassemble as follows:

(2) Remove rubber boots (2 and 9) and connecting links (1 and 10) from cylinder ends.

(3) Push out pistons (3 and 8), piston cups (4 and 7), and spring (5) from cylinder body (6). Low pressure air at fluid inlet can also be used to remove internal parts.

(4) Remove bleeder (11).



ME 3930-628-34/6-1

1. Connecting link
2. Boot
3. Piston
4. Piston cup
5. Spring
6. Cylinder body
7. Piston cup
8. Piston
9. Boot
10. Connecting link
11. Bleeder
12. Screw
13. Lock washer

Figure 6-1. Brake wheel cylinder, exploded view.

d. Cleaning and Inspection.

(1) Clean all parts thoroughly and keep them clean until unit is ready for assembly. Use lint free cloth for cleaning.

Caution: Wash parts thoroughly in denatured alcohol or clean brake fluid. Never use gasoline, kerosene, paint thinner or other mineral base solvents as they will damage rubber components.

(2) Thoroughly inspect all parts for wear, corrosion or other conditions which might impair cylinder action.

Caution: Do not use emery cloth or sandpaper.

(3) Inspect cylinder bore. Deep blemishes require boring to resurface the cylinder wall. Do not bore beyond manufacturer's specifications. Pressure marks may be polished out with crocus cloth.

(4) If it is necessary to resurface the cylinder wall, use the following procedure:

(a) Coat walls of cylinder bore with hydraulic brake fluid.

(b) Secure cylinder body in a bench vise.

(c) Using honing equipment, remove material from cylinder bore in single passes.

(d) After each pass is completed, remove hone and inspect for scratches and pitting. Remove only enough material to recondition cylinder bore. Do not hone cylinder oversize.

Note. If the cylinder has been honed oversize or greater than 1.507 of an inch, it must be replaced.

(e) Wash master cylinder body in a clean rm water and soap solution.

(f) Final rinse cylinder in clean warm water l blow dry with compressed air. Immediately merge cylinder body in clean hydraulic brake id.

(5) Before assembly, inspect parts for rosion, scratched or pitted piston bearing faces, rubber deterioration, and defective spring ion.

(6) Replace worn, damaged, corroded or teriorated parts as authorized.

e. Assembly.

(1) Refer to figure 6-1 and assemble as lows:

(2) Lubricate all parts and cylinder walls with an brake fluid.

(3) Insert spring (5) and piston cups (4 and 7) cylinder body.

(4) Insert each piston (3 and 8) in its pective end. Never attempt to push piston ough length of cylinder.

(5) Install boots (2 and 9), being sure they are operly located in grooves provided.

f. Installation. Refer to TM 10-3930-628-12 installation procedures.

6-5. Master Cylinder

a. Description. The brake master cylinder and fluid reservoir are combined in one casting, and are joined by intake and by-pass ports in the cylinder wall. Internal parts are removable through the push rod end.

b. Removal. Refer to TM 10-3930-628-12 for removal procedures.

c. Disassembly.

(1) Refer to figure 6-2 and disassemble as follows:

(2) Secure cylinder in vise, using care not to distort or crack casting.

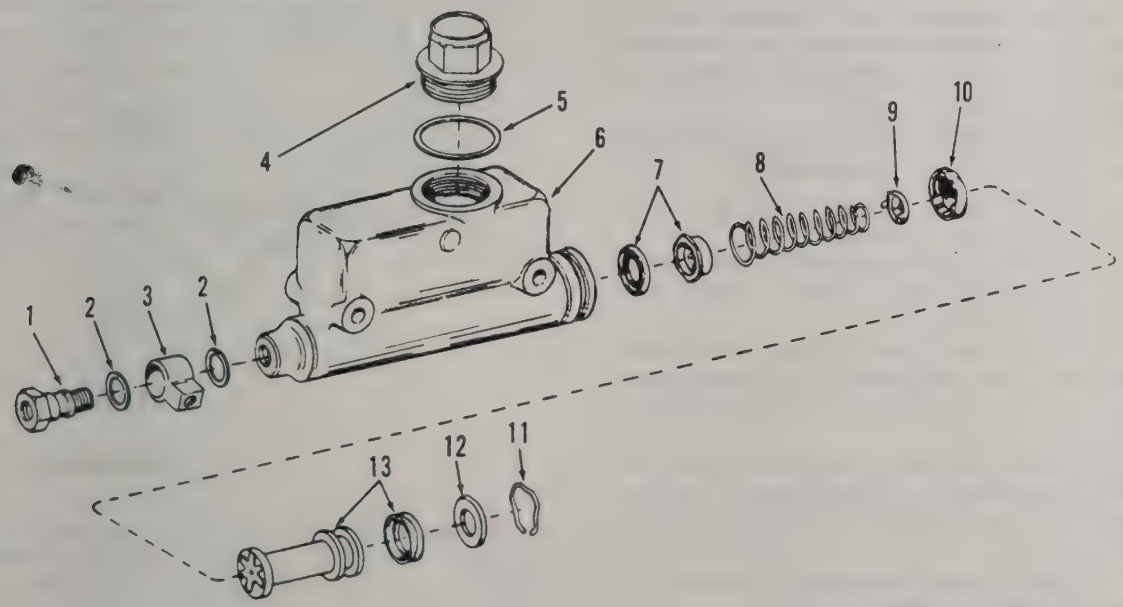
(3) Holding piston assembly (13) in cylinder, gently pry off lockwire (11).

***Caution:* When lockwire is removed, continue holding piston in place or entire assembly will spring out.**

(4) Slowly relax hold on piston and carefully remove stop plate (12), piston assembly (13), rubber piston cup (10), retainer (9), spring (8), and check valve (7).

(5) Remove bolt (1), gaskets (2), and fitting (3).

(6) Remove filler plug (4) and gasket (5).



ME 3930-628-34/6-2

1. Outlet bolt
2. Gasket
3. Fitting
4. Plug
5. Gasket
6. Cylinder and tank
7. Check valve
8. Spring
9. Retainer
10. Piston cup
11. Lockwire
12. Stop plate
13. Piston assembly

Figure 6-2. Master brake cylinder, exploded view.

d. Cleaning and Inspection.

Caution: Dirty parts or internal rubber parts which become swollen, tacky, and otherwise deteriorated by mineral base cleaning solvents can lead to brake failure and possible injury to the operator.

(1) Clean all parts with denatured alcohol or brake fluid, and keep clean in all following operations.

Caution: Do not use emery cloth or sandpaper.

(2) Inspect cylinder bore. Deep blemishes require boring to resurface the cylinder wall. Do not bore beyond manufacturer's specifications. Pressure marks may be polished out with crocus cloth.

(3) Make sure intake and by-pass ports are open. By-pass ports may be probed with soft iron wire.

(4) If it is necessary to resurface the cylinder wall, use the following procedure:

(a) Coat walls of cylinder bore with hydraulic brake fluid.

(b) Secure master cylinder body in a bench vise.

(c) Using honing equipment, remove material from cylinder bore in single passes.

(d) After each pass is completed, remove hone and inspect for scratches and pitting. Remove only enough material to recondition cylinder bore. Do not hone cylinder oversize.

Note. If the master cylinder has been honed oversize or greater than 1.007 of an inch, it must be replaced.

(e) Wash master cylinder body in a clean warm water and soap solution.

(f) Check to be certain intake and by-pass ports are open and free of burrs, which may damage piston cup.

(g) Final rinse cylinder in clean warm water and blow dry with compressed air. Immediately submerge master cylinder body in clean hydraulic brake fluid.

(5) Before assembly, inspect parts for corrosion, scratched or pitted piston bearing surfaces, rubber deterioration, and defective spring action.

(6) Replace worn, damaged, corroded or deteriorated parts as authorized.

(7) Replace all gaskets.

e. Assembly. Refer to figure 6-2 and assemble as follows:

(1) Lubricate parts and cylinder bore with clean brake fluid.

(2) Using new gasket (5) install plug (4) and gasket.

(3) Install fitting (3) and bolt (1) with new gaskets (2).

(4) Install check valve (7) and spring (8) with largest ends toward outlet end of cylinder. Hold in place.

(5) While holding spring in place, insert retainer (9), piston cup (10), piston assembly (13), and stop plate (12).

(6) Firmly seat lockwire (11) in groove.

f. Installation. Refer to TM 10-3930-628-12 for installation procedure.

6-6. Brake Pedal

a. Removal.

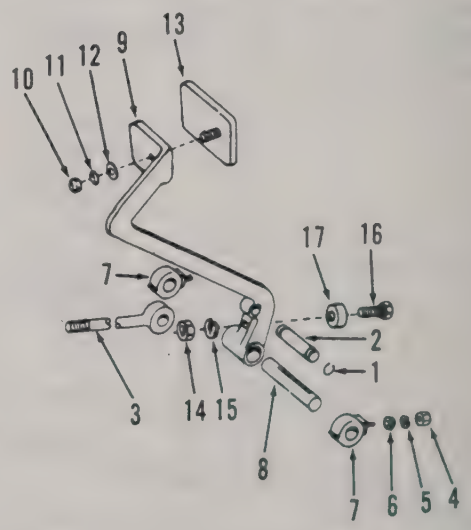
(1) Remove floor plates and toe plate (TM 10-3930-628-12).

(2) Remove retaining rings (1, fig. 6-3).

(3) Remove shaft (2) to free pedal (9) from master cylinder rod (3).

(4) Remove nuts (4), lock washers (5) and washers (6). Remove pillow block bearings (7) from pivot pin (8).

(5) Drive pivot pin (8) from pedal (9).



ME 3930-628-34/6-3

1. Retaining ring
2. Shaft
3. Rod
4. Nut
5. Lock washer
6. Washer
7. Bearings
8. Pivot pin
9. Brake pedal
10. Nut
11. Lock washer
12. Washer
13. Pad
14. Nut
15. Lock washer
16. Screw
17. Bumper

Figure 6-3. Brake pedal assembly and related parts, exploded view.

b. Disassembly. Refer to figure 6-3 and disassemble pedal as follows:

(1) Remove nut (10), lock washer (11), sher (12) and pad (13).

(2) Remove nut (14), lock washer (15), screw 6) and bumper (17) only if replacement is cessary.

c. Inspection. Inspect all parts for damage and ar. Replace defective parts as authorized.

d. Assembly. Refer to figure 6-3 and assemble ake pedal in reverse order of disassembly.

e. Installation. Refer to figure 6-3 and install ake pedal as follows:

(1) Install pivot pin (8) in pedal (9).

(2) Install bearings (7) on pin (8).

(3) Install assembly in truck with nuts (4), lock washers (5) and washers (6).

(4) Align cylinder rod (3) with pedal hole and install shaft (2).

(5) Install retaining rings (1).

f. Adjustment and Lubrication. Refer to TM 10-3930-628-12 and LO 10-3930-628-12 for adjustment and lubrication procedures.

Section II. PARKING BRAKE ASSEMBLY

7. Description

ne parking brake is a two-shoe mechanical brake ounted on the drive motor armature shaft. aking action is initiated through spring pressure d a mechanical linkage attached to the brake tuating lever. Pressure rotates a lever inside the ake drum forcing the spring retained shoes tward, causing the shoe linings to contact the ating drum. When brake drum movement is pped the truck can not be moved until the rking brake is released. When spring pressure is ieved the brake shoes are returned to neutral sition by shoe return springs.

8. Removal and Disassembly

a. Raise front end of lift truck for access to rking brake. Block frame and rear wheel urely.

b. Raise operator's seat until seat hinge is ured in seat latch.

c. Disconnect upper actuating link yoke from seat actuating arm. Refer to TM 10-3930-628-12 and remove lower spring and linkage.

d. Refer to paragraph 2-6 to disconnect drive motor from drive axle. Lower motor far enough to allow room to remove parking brake.

e. Refer to figure 6-4. Remove nut holding drum (1) to motor shaft.

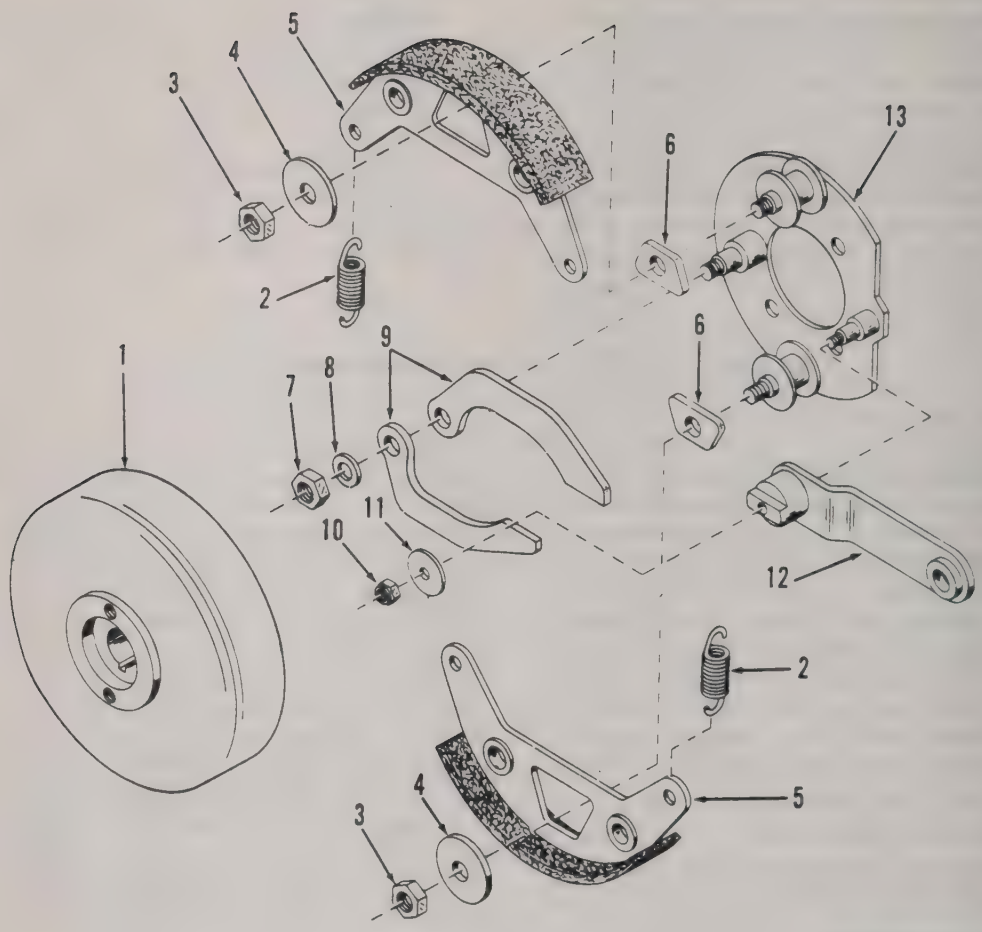
f. Disconnect and remove springs (2).

g. Remove nuts (3) and washers (4). Remove shoes (5) and inserts (6).

h. Remove nuts (7) and washers (8) securing actuator arms (9) and remove arms.

i. Remove nut (10), washer (11) and actuating lever (12).

j. Remove screws holding backing plate (13) to drive motor housing.



1. Drum
2. Return spring
3. Nut
4. Washer
5. Brake shoes
6. Insert
7. Nut
8. Washer
9. Actuating arm
10. Nut
11. Washer
12. Actuating lever
13. Backing plate

Figure 6-4. Parking brake assembly, exploded view.

6-9. Inspection

a. Refer to figure 6-4 and inspect as follows:

b. Check backing plate (13) for distortion, worn pivot bushings and loose pivot mountings.

c. Check brake shoes (5) for wear or grease saturation. Replace brake shoes if lining is worn to 1 / 16 inch thickness.

d. Check brake shoes (5) and inserts (6) for worn pivot holes and actuating arm contact areas.

e. Check brake drum (1) for cracks, scoring or other damage.

f. Inspect actuating arms (9) and lever (12) for excessive wear.

g. Always replace springs (2) in pairs.

6-10. Assembly and Installation

a. Refer to figure 6-4 and assemble as follows:

b. Lightly coat backing plate (13) pivots and bushings with brake lubricant. Avoid excessive use as grease-soaked linings are dangerous.

c. Assemble the parking brake in reverse order of disassembly.

d. Refer to paragraph 2-6 and connect drive motor to drive axle. Refer to TM 10-3930-628-12 to install lower spring and connect linkage.

e. Remove blocks and lower truck wheels to floor.

f. Adjust parking brake linkage (TM 10-3930-628-12).

1. Description

ive wheel assemblies consist of a wheel, which ves as a brake drum, a bull gear, a tire, and inner l outer tapered roller bearings. Rear wheel emblies contain a wheel, a tire, and inner and er tapered roller bearings. Each wheel assembly ecured to its respective axle by a nut and cotter located under a hub cap.

2. Removal

fer to TM 10-3930-628-12 for removal cedures of either steering or drive wheel emblies.

3. Disassembly

a. *Drive Wheel Assembly.* Refer to figure 6-5 l disassemble as follows:

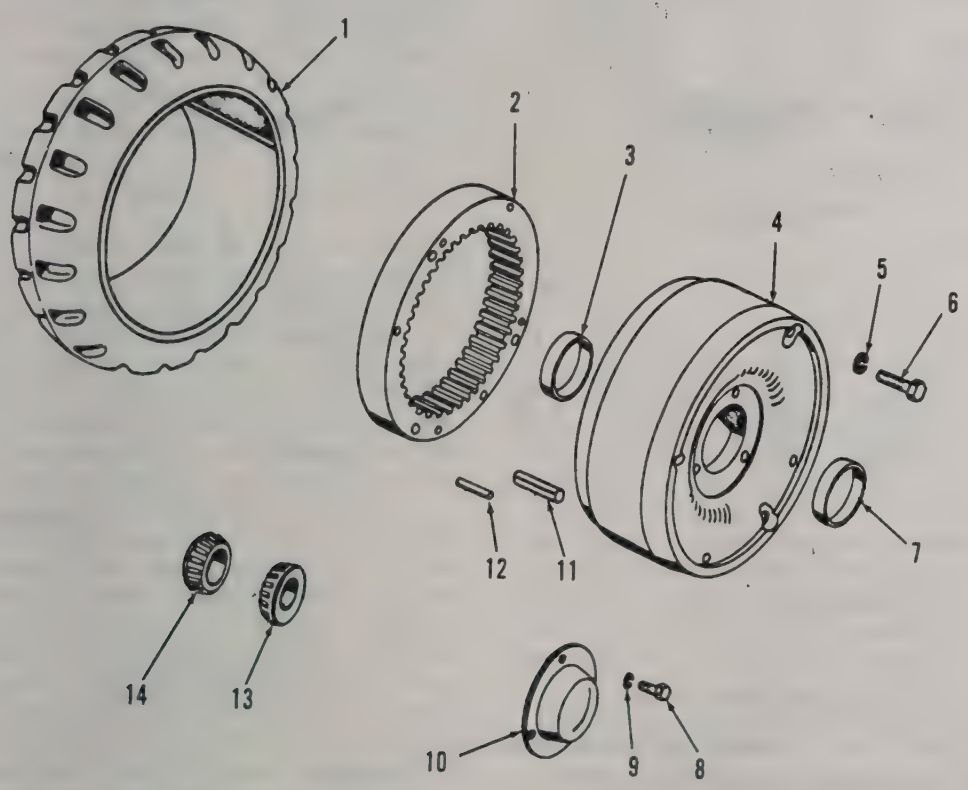
(1) If inspection indicates replacement is necessary, remove tire (1) from wheel (4) (para 6-17).

(2) Remove screws (6), lock washers (5), and bull gear (2) from wheel (4).

(3) Turn wheel (4) over, and drive bull gear (2) from wheel using same screws (6). Tighten screws evenly.

(4) Remove pins (11 and 12) from bull gear (2).

(5) Using bearing cup puller, remove bearing cups (3 and 7) from wheel (4).



ME 3930-628-34/6-5

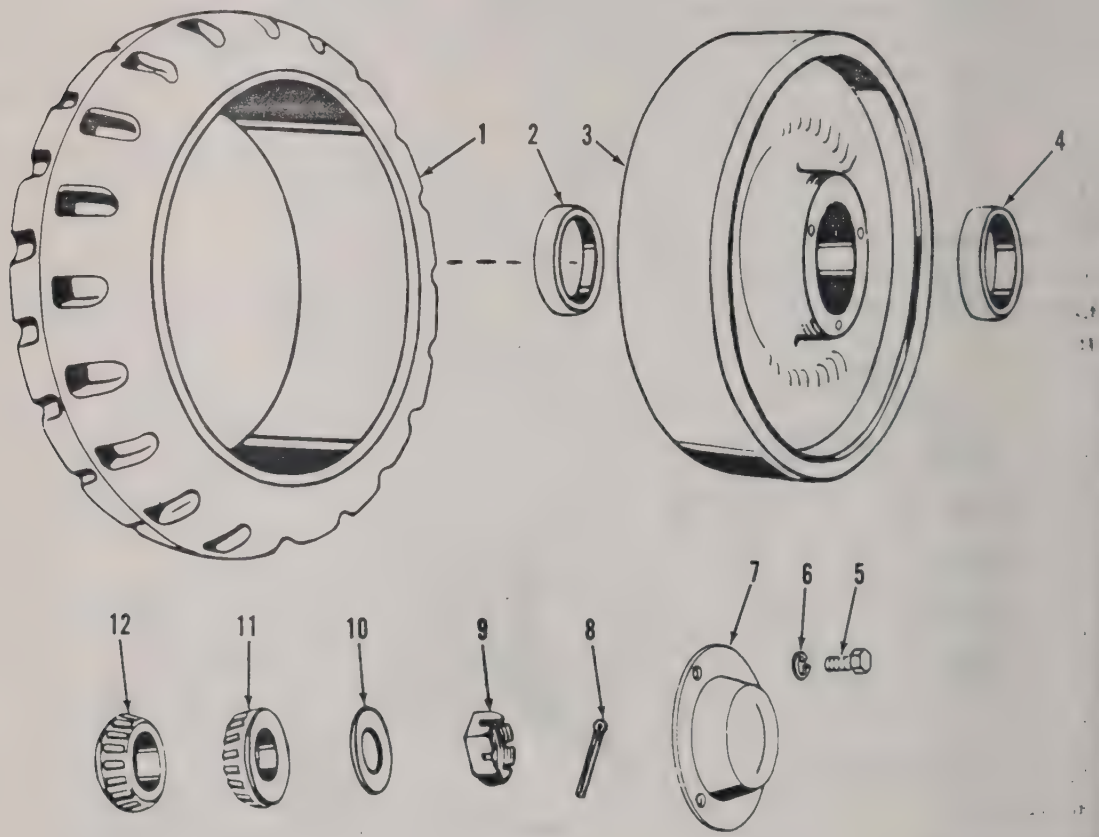
1. Tire
2. Bull gear
3. Inner bearing cup
4. Drive wheel
5. Lock washer
6. Screw
7. Outer bearing cup
8. Screw
9. Lock washer
10. Hub cap
11. Spring pin
12. Pin
13. Outer bearing cone
14. Inner bearing cone

Figure 6-5. Drive wheel assembly, exploded view.

b. Rear Wheel Assembly. Refer to figure 6-6 and disassemble as follows:

(1) If inspection indicates replacement is necessary, remove tire (1) from wheel (3) (para 6-17).

(2) Using bearing cup puller, remove bearing cups (2 and 4) from wheel (3).



1. Tire
2. Inner bearing cup
3. Wheel
4. Outer bearing cup
5. Bolt
6. Lock washer
7. Hub cap
8. Cotter pin
9. Nut
10. Flat washer
11. Outer bearing cone
12. Inner bearing cone

Figure 6-6. Rear wheel assembly, exploded view.

6-14. Cleaning, Inspection, and Replacement

a. Inspect tire for wear (TM 10-3930-628-12) and replace if necessary (para 6-17).

b. Clean all parts with cleaning compound, solvent (Fed. Spec. P-D-680). Dry thoroughly with compressed air.

c. Inspect bearing cones and cups, wheels, and bull gear for damage and excessive or uneven wear.

d. Replace all parts as authorized.

e. Repack bearings (TM 10-3930-628-12).

6-15. Assembly

a. Drive Wheel Assembly. Refer to figure 6-5 and assemble as follows:

(1) Press bearing cups (3 and 7) in wheel hub with taper to outside of wheel. Tap in place evenly around edge of cup.

Caution: Pressure must be evenly distributed on cups to avoid damage and cocking.

(2) Install pins (11 and 12) in bull gear (2).

(3) Align pins and install bull gear (2) on el (4), using screws (6) from other side of el. Tighten screws evenly and in sequence.

(4) Remove screws (6) and secure bull gear to wheel (4) with screws (6) and lock washers as originally installed. Torque screws to 28 to foot pounds.

(5) Lubricate bull gear (LO 10-3930-628-12).

(6) Mount new tire (1) on wheel (4) (para 6- if replacement is necessary.

. Rear Wheel Assembly. Refer to figure 6-6 assemble as follows:

(1) Press bearing cups (2 and 4) in wheel hub.

Caution: **Pressure must be evenly ributed on cups to avoid damage and king.**

(2) Mount new tire (1) on wheel (3) (para 6- if replacement is necessary.

5. Installation

er to TM 10-3930-628-12 for installation edures of either rear or drive wheel assemblies.

ote. Wheels must rotate freely, with no bearing end-play.

7. Tire Replacement

er to figure 6-7 and the following procedure for removal:

. Remove wheel and tire assembly (TM 10- 0-628-12).

. Check inside diameter of new tire. Remove signs of scale or rust with sandpaper. Lubricate le of new tire with bearing grease (GAA).

Place a circular ram on the press table. The th of the ram must be greater than the width of tire to allow complete removal of the old tire. outside diameter of the ram must be large gh to rest squarely on the bull gear's flat ace (drive wheels) or on the flat surface ided around the wheel hub (steer wheels).

. If the outside edge of the wheel is not flush the edge of the metal insert in the old tire, sure how far wheel is recessed inside the tire. tires must be installed in the same position as vorn tire. A spacer, slightly smaller in diameter the inside diameter of the tire and the same ness as the depth of the recess, can be used to in the proper amount of recess.

Center worn tire and wheel assembly over . Be sure ram and wheel match squarely.

Position new tire on top of wheel and old tire nbly. Align new tire and the wheel and old tire nbly so that they are concentric with each r (fig. 6-7).

Note. Make certain the outside of the wheel is positioned rds, because the outside edge of the wheel has a slight chamfer to help guide the wheel into the new tire. The tire can only be installed in one direction to prevent damage to the wheel.

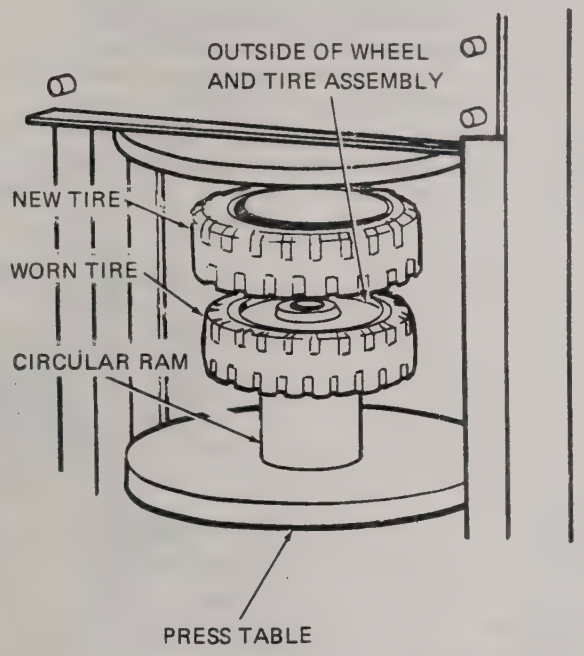


Figure 6-7. Tire positioning for replacement.

g. Start pressing new tire on the wheel and worn tire off the wheel. Run press slowly for the first inches of travel. If tire begins to cock, stop press and align wheel and tires. A sharp jar with a mallet will normally align wheel and tire. If the wheel is to be recessed in the tire, stop the press after the wheel has started into the new tire and position a spacer on the inside diameter of the new tire. The spacer on the outer edge of the wheel. Continue pressing the new tire on wheel until tire is correctly positioned.

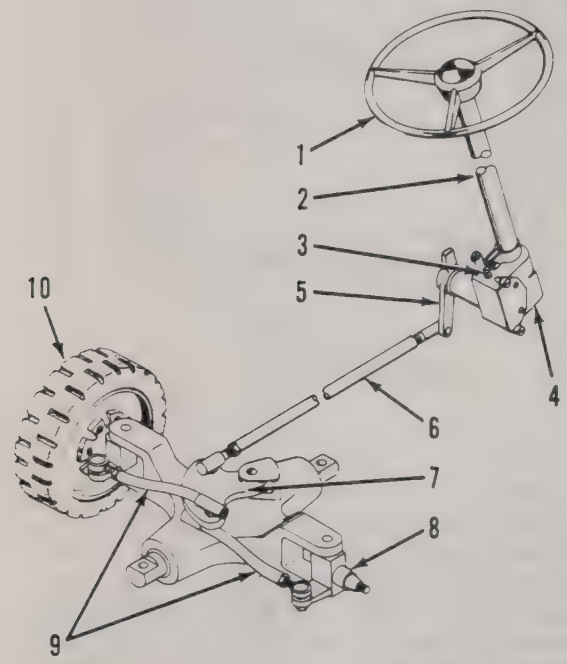
Note. When pressing tires on wheels, the tire on the rear wheel must overlap wheel ½ inch on inside of wheel. Drive wheel tire must overlap wheel ¼ inch on inside of wheel.

h. Release press and remove tires. Inspect new wheel and tire assembly.

i. Install new wheel and tire assembly (TM 10-3930-628-12).

6-18. Description

The steering system consists of a steering gear assembly, drag link assembly and steering axle (fig. 6-8). Major components of the steering gear assembly are a wheel, steering gear unit and steering arm. When the wheel is turned, the steering gear worm arrangement swings the steering arm, exerting force on the drag link to pivot the steering wheels.



ME 3930-628-34/6-8

1. Steering wheel
2. Steering column
3. Filler plug
4. Steering gear assembly
5. Steering arm
6. Drag link
7. Pivot arm
8. Wheel spindle
9. Tie rods
10. Rear wheel

Figure 6-8. Steering system.

6-19. Removal

a. Remove floor and toe plates (TM 10-3930-628-12).

b. Remove steering wheel (TM 10-3930-628-12).

c. Loosen adjusting plug in drag link and disconnect drag link (6) from steering arm (5).

d. Remove ties holding electrical cables to steering column. Push cables aside.

e. Disconnect and remove horn button wires.

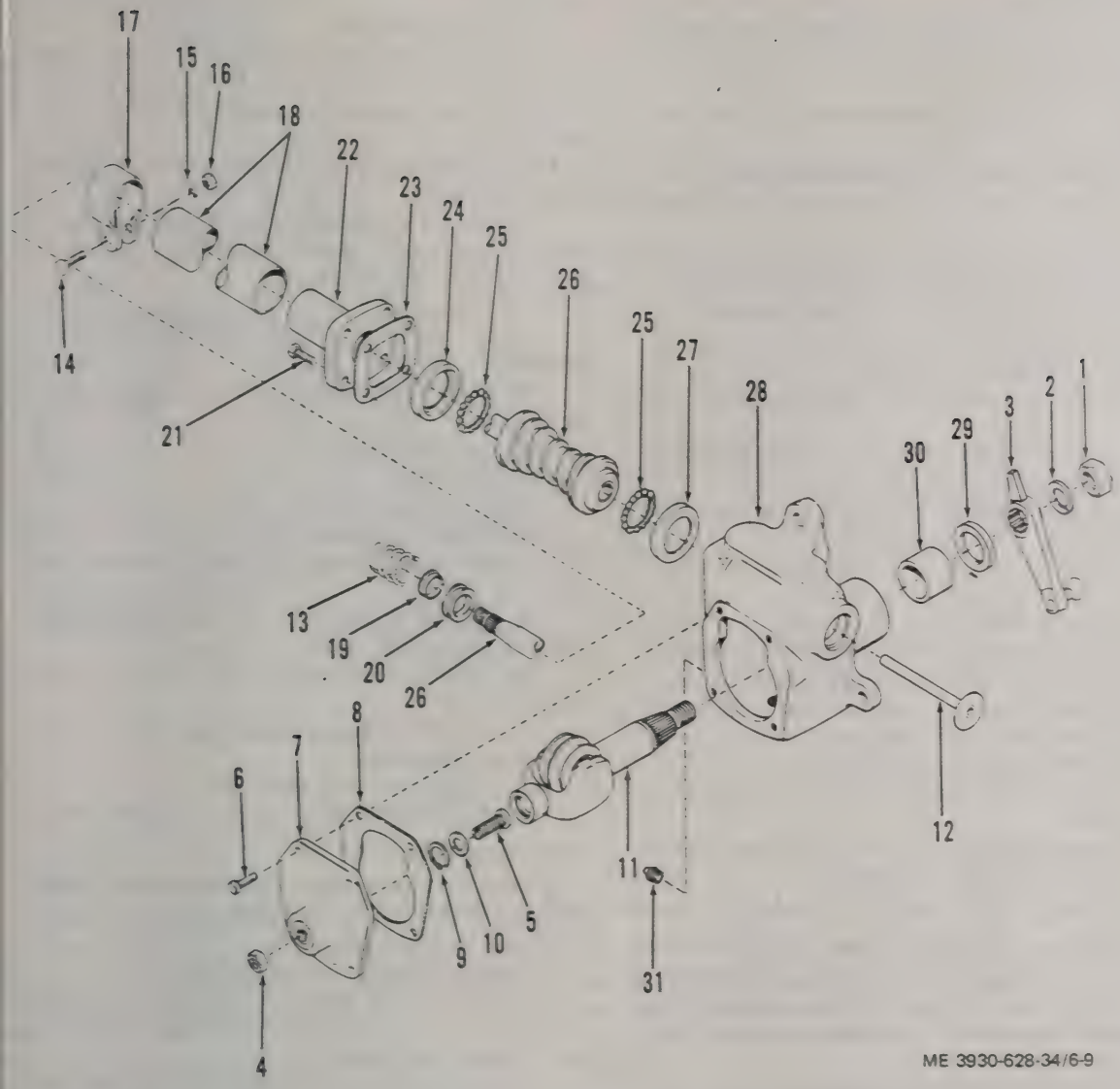
f. Loosen screws (6, fig. 6-9) and allow oil to drain from housing.

g. Remove clamp bracket at upper part of column.

h. Remove nut (1, fig. 6-9), lock washer (2) and steering arm (3) from steering gear.

i. Remove screws, nuts and lock washers attaching steering gear assembly (4, fig. 6-8) to frame bracket.

j. Lift steering gear assembly up and out of truck and place in clean work area for disassembly.



1. Nut
2. Lock washer
3. Steering arm
4. Nut
5. Adjusting screw
6. Screw
7. Cover
8. Gasket
9. Retaining ring
10. Thrust washer
11. Shaft
12. Grease tube
13. Spring
14. Screw
15. Lock washer
16. Nut
17. Clamp
18. Tube
19. Spacer
20. Bearing
21. Screw
22. Cap
23. Shims
24. Upper bearing cup
25. Bearings
26. Shaft and worm
27. Lower bearing cup
28. Gear housing
29. Oil seal
30. Sleeve bearing
31. Filler plug

Figure 6-9. Steering gear assembly, exploded view.

6-20. Disassembly

a. General. Refer to figure 6-9 when disassembling. Disassembly should proceed only as far as necessary for repair and replacement.

b. Roller Shaft.

(1) Place steering gear assembly in a vise with column up.

(2) Remove nut (4) from adjusting screw (5).

(3) Remove screws (6), cover (7) and gasket (8).

(4) Remove retaining ring (9), thrust washer (10) and adjusting screw (5) from shaft (11). Carefully withdraw shaft (11) from housing.

(5) Remove grease tube (12).

c. Steering Column.

(1) Remove spring (13) from upper end of column.

(2) Loosen clamp screw (14) and pull tube (18) from cap (22).

(3) Remove spacer (19) and bearing (20) from tube (18).

(4) Remove screws (21), cap (22) and shims (23).

d. Shaft and Worm.

(1) Carefully tap shaft and worm assembly from gear housing with bearings attached.

(2) Remove upper bearing cup (24) and bearings (25) from shaft and worm (26).

e. Gear Housing.

(1) Press lower bearing cup (27) from gear housing (28).

(2) Remove oil seal (29) and press sleeve bearing (30) from gear housing.

(3) Remove filler plug (31).

6-21. Cleaning, Inspection and Replacement

a. Clean all parts with cleaning compound, solvent (Fed. Spec. P-D-680). Cleaning may be done during disassembly and parts set to dry on clean paper towel.

b. Inspect all moving parts to make sure they have not been scored or damaged by dirt particles. Smooth burnished surfaces are normal in some areas. Any slightly scored parts may be cleaned by hand rubbing with 600 grit abrasive paper.

c. Prepare all parts for reassembly as follows:

(1) Coat metal parts with engine oil (OE).

(2) Coat ball bearings with grease (GAA).

6-22. Assembly

a. General. Refer to figure 6-9 when assembling.

b. Gear Housing.

(1) Wipe sleeve bearing bore clean of dirt particles and press in bearing sleeve (30).

(2) Wipe lower steering column shaft bearing cup seat clean of dirt particles and press in bearing cup (27).

c. Shaft and Worm.

(1) Hold lower ball bearing (25) in lower cup (27) with coat of grease (GAA).

(2) Install upper ball bearing (25) on worm shaft (26).

(3) Install upper bearing cup (24) and install shaft in housing.

(4) Install shims (23), cap (22) and screws (21). Turn shaft while tightening screws to properly seat ball bearings.

d. Steering Column.

(1) Install bearing (20) and spacer (19) in tube (18).

(2) Install tube on cap (22) and tighten clamp screw (14).

(3) Install spring (13).

e. Roller Shaft.

(1) Install grease tube (12).

(2) Install adjusting screw (5) in end of shaft (11). Install thrust washer (10) and retaining ring (9).

(3) Install shaft (11) in housing, carefully aligning worm and roller.

(4) Install new gasket (8), cover (7) and screws (6).

(5) Install adjusting screw nut (4).

f. Gear Housing.

(1) Install new oil seal (29).

(2) Install filler plug (31) in housing (28).

6-23. Installation

a. Install steering gear assembly in the truck. Attach gear housing to frame bracket with screws, nuts and lock washers.

b. Install steering arm as follows:

(1) The index mark on the hub of steering arm (fig. 6-10) must match the missing tooth space on the gear unit shaft.

(2) Install lock washer (2, fig. 6-9) and nut (1). Tighten nut to 140—170 foot pounds torque.

(3) Install upper column clamp bracket.

(4) Connect horn button wires.

(5) Attach electrical cables to column.

(6) Install steering wheel (TM 10-3930-628-12).

(7) Refill steering gear housing with Lubricant in accordance with current LO.

6-24. Adjustments

a. Drag Link Adjustment.

(1) With steering wheel and rear wheels in straight steer position (TM 10-3930-628-12) attach drag link to steering arm ball stud (fig. 6-10).

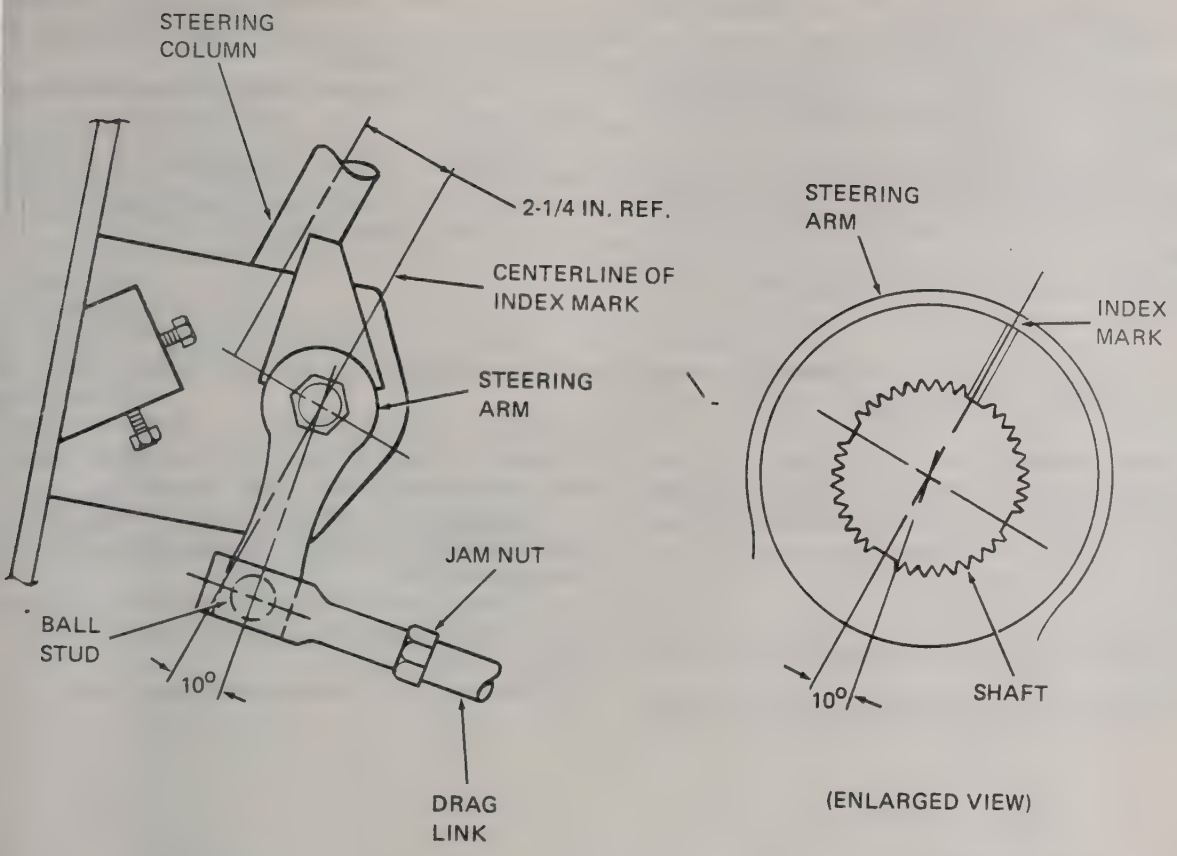


Figure 6-10. Steering arm installation and drag link adjustment.

(2) With steering arm in position shown on e 6-10 (center of ball stud 10° from centerline dex mark), adjust drag link to match ball stud ion.

(3) Tighten plug in drag link until all end play moved. Tighten plug one more turn to align r pin hole and compress spring. Secure plug cotter pin.

(4) With drag link attached to ball stud and sted to remove end play, tighten drag link jam fig. 6-10) to 90—100 foot-pounds.

Worm Bearing Adjustment.

(1) Turn steering wheel to end of travel in r direction. To check worm bearing ading, place a torque gage on the steering and turn steering wheel back approximately quarter turn. Torque reading must be ¾—1¼ pounds (6¾—11¾ inch-pounds).

(2) Adjust preloading as follows:

(a) Place drain pan under steering gear ng. Drain lubricant.

(b) Remove capscrews (21, fig. 6-9) and n cap (22).

(c) If torque reading is greater than that specified, add extra shims (23). If reading is less than that specified, remove shims.

(d) Tighten capscrews (21) to 24—35 foot-pounds.

(e) Refill housing with lubricant, install filler plug. Recheck preload with torque gage. If reading is not within specifications, add or subtract shims one at a time, tightening capscrews and checking reading each time.

c. Worm and Roller Mesh Adjustment.

(1) Center the steering wheels and disconnect drag link from steering arm.

(2) Count number of full turns of steering wheel from one extreme to the other. One-half total number of turns is mid-position.

(3) With wheel at mid-position, attach drag link to steering arm.

(4) Place torque gage on steering shaft. Swing wheel one-quarter turn. Torque reading must be 2-3½ foot-pounds (18-31½ inch-pounds).

(5) Adjust worm and roller mesh as follows:

(a) Place drain pan under steering gear housing and drain lubricant.

(b) Loosen adjusting locknut (4, fig. 6-9) and turn adjusting screw (5) clockwise to increase torque reading or counterclockwise to decrease reading.

Caution: **Always maintain at least ¾ foot-pounds difference between preload reading (when wheel is only ¼ turn from either extreme) and load reading (when wheel is ¼ turn either direction from midposition).**

(c) When adjustment is correct, hold adjusting screw (5) in place and tighten lock nut (4) to 20—25 foot-pounds.

(d) Refill housing with lubricant and install filler plug.

d. Steering Arm and Axle Stop Adjustment. Refer to TM 10-3930-628-12 and adjust steering arm and axle stops. Install floor and toe plates (TM 10-3930-628-12).

Section V. STEERING CONNECTION

6-25. Description

The steering drag link assembly connects the arm on the steering gear to the pivot bracket on the rear steering axle. The link assembly is adjustable for steering system operation.

6-26. Removal

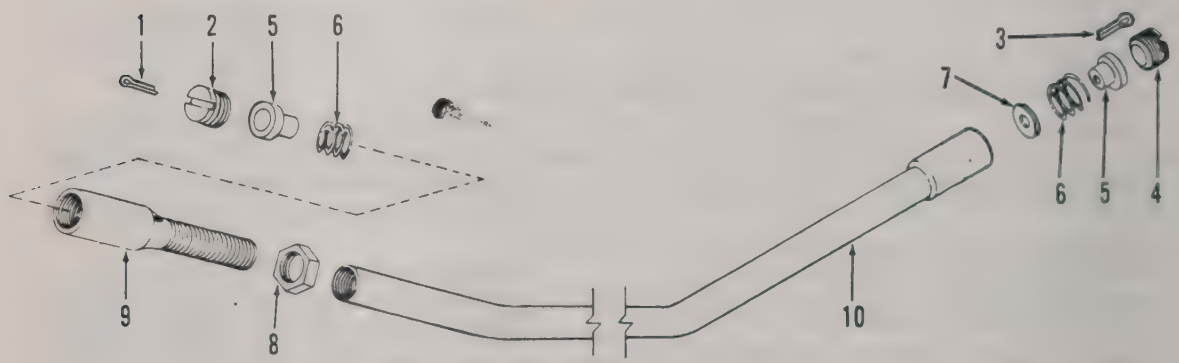
a. Remove floor and toe plates (TM 10-3930-628-12).

b. Raise rear of truck with a chain hoist enough to make rear end of drag link accessible. Block front wheels and under frame securely.

c. Remove cotter pin (1, fig. 6-11) and loosen adjusting plug (2) to disconnect drag link end from steering gear arm.

d. Remove cotter pin (3) and loosen adjusting plug (4) to disconnect drag link from pivot arm ball on rear axle.

e. Remove drag link assembly from truck.



ME 3930-628-34/6-11

1. Cotter pin
2. Adjusting plug
3. Cotter pin
4. Adjusting plug
5. Ball seat
6. Spring
7. Washer
8. Jam nut
9. Socket
10. Link

Figure 6-11. Drag link assembly, exploded view.

. Disassembly

Remove adjusting plugs (2 and 4).

Remove ball seats (5), springs (6) and washer

Scratch mark on socket (9) for position.
en jam nut (8) and remove socket (9) and nut.

. Cleaning, Inspection and Replacement.

Clean all parts with cleaning compound,
nt (Fed. Spec. P-D-680). Cleaning may be
during disassembly and parts set to dry on
paper towel.

Inspect parts to be sure they have not been
ely scored or damaged by dirt particles. Clean
tly scored parts by hand rubbing with 600-grit
sive paper.

Prepare parts for reassembly by coating with
e (GAA).

. Assembly

r to figure 6-11 and assemble the drag link
nbly in reverse order of disassembly.

6-30. Installation

a. Align socket end of drag link assembly with ball on steering unit arm and install. Tighten adjusting plug to retain it.

b. Install rear end of drag link on ball on rear axle pivot arm. Tighten adjusting plugs (2 and 4, fig. 6-11) until all end play is removed. Continue tightening about one more turn to align cotter pin holes and compress spring. Secure plugs with cotter pins (1 and 3).

6-31. Adjustment

a. Adjust drag link and steering arm as detailed in paragraph 6-24.

b. Install new cotter pins in adjusting plug holes.

c. Lubricate drag link fittings (LO 10-3930-628-12).

d. Install toe and floor plates. Remove blocks and lower rear of truck to floor.

CHAPTER 7

FRAME AND COMPONENTS

Section I. GENERAL

. General

. This chapter covers repair of the truck frame
l components. The frame forms the base for the
:k. All parts are attached to or supported by the
ded frame.

). Repair of the parking brake linkage and the
are also contained in this chapter. The seat
ıates the parking brake and switch. To operate
truck the seat must be depressed to release the
ke and close the switch.

. Description

. *Frame.* The frame is of welded steel con-
ction. The front is adaptable to connect the
t and has cutouts to allow function of the tilt
nders. A slanted upright section at the front
ports the instrument panel and directional
trol. Floor and toe plates with cutout sections
er the service brake and accelerator linkages.
The accelerator is mounted on the toe plate, with the accelerator rod extending from the linkage through a slot in the toe plate.

b. Mountings. The rear of the frame is recessed to provide a large compartment for the battery. A counterweight is secured to the rear plate of the compartment and the truck frame. Mounting for the power switch is provided in a box-like opening in the lower left side of the frame. Sintered metal filters allow air to enter the compartment for cooling but effectively keep any dirt or debris from entering. An upright rear wall of the operator's compartment serves as a support for the contactor box, parking brake linkage, operators seat and control valve. A welded steel slanted front portion of the frame supports the instrument panel and steering column.

Section II. FRAME AND COMPONENTS

Removal and Disassembly

. Refer to the previous chapters of the book to
ove components.

. Refer to figure 7-1 to remove sheet metal
s and frame parts for repair as necessary.

Cleaning

. Clean all parts in cleaning compound, solvent
l. Spec. P-D-680) and dry thoroughly with
pressed air.

. Clean acid tray with a solution of baking soda
water. Flush clean with fresh water.

Inspection and Repair

Straighten bent sheet metal if possible. Check
longated screw holes and cracked areas.

b. Inspect frame for cracks, broken welds and other damage. Repair welds.

c. Inspect hinges on battery cover for proper operaton.

d. Check sintered metal filters for cracks, chipped areas or other damage. Replace damaged filters.

7-6. Installation

a. Refer to figure 7-1 and install parts as necessary.

b. Refer to previous chapters to install truck components.

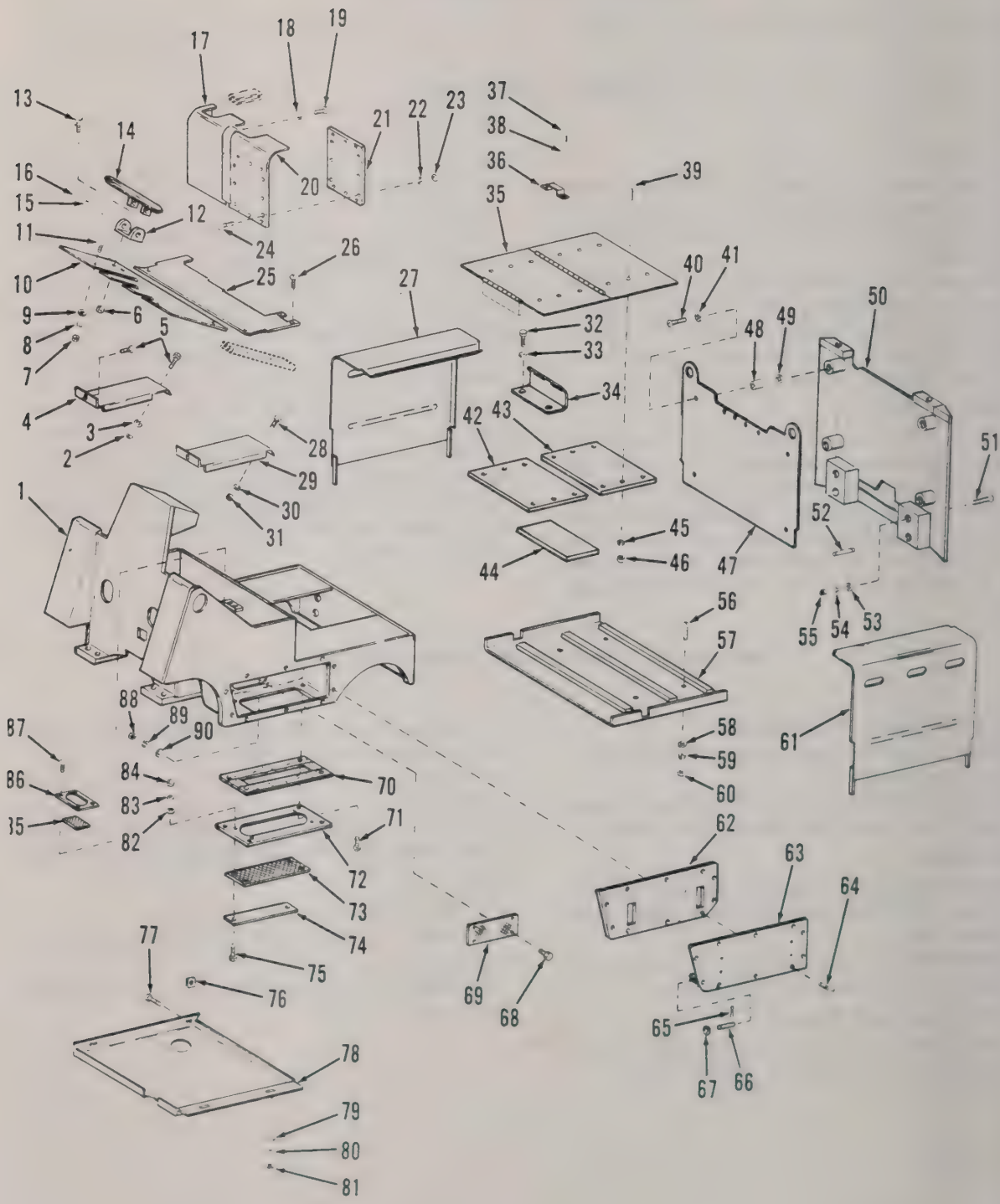


Figure 7-1. Frame and components, exploded view.

KEY to fig. 7-1:

1. Frame
2. Nut
3. Washer
4. Control board cover
5. Screw
6. Nut
7. Nut
8. Washer
9. Washer
10. Toe plate
11. Screw
12. Accelerator bracket
13. Screw
14. Accelerator
15. Pivot pin
16. Retaining ring
17. Valve cover
18. Washer
19. Screw
20. Contactor box cover
21. Gasket
22. Washer
23. Nut
24. Screw
25. Floor plate
26. Screw
27. Side panel
28. Screw
29. Diode cover
30. Washer
31. Nut
32. Screw
33. Washer
34. Battery retainer
35. Battery cover
36. Handle
37. Screw
38. Washer
39. Screw
40. Screw
41. Washer
42. Insulation
43. Insulation
44. Insulation
45. Washer
46. Nut
47. Rear plate
48. Spacer
49. Washer
50. Counterweight
51. Screw
52. Pin
53. Washer
54. Washer
55. Nut
56. Screw
57. Acid tray
58. Washer
59. Washer
60. Nut
61. Side panel
62. Gasket
63. Power switch cover
64. Screw
65. Cotter pin
66. Hinge pin
67. Washer
68. Screw
69. Filter
70. Gasket
71. Screw
72. Bottom plate
73. Filter
74. Strap
75. Screw
76. Nut
77. Screw
78. Drip pan
79. Washer
80. Washer
81. Nut
82. Washer
83. Washer
84. Nut
85. Filter
86. Cover
87. Screw
88. Nut
89. Washer
90. Washer

Section III. PARKING BRAKE LINKAGE

General

The parking brake linkage is actuated by the
d operating seat. Weight of the operator
s the seat, disengages the parking brake and
the seat switch. The seat must be occupied
switch closed before truck circuits are
tive.

A heavy spring, secured to the lower part of
nkage beneath the drive motor bracket, ap-
he brake when pressure is removed from the

Removal

Refer to TM 10-3930-628-12 to remove the
e and seat.

b. Refer to figure 7-2 for removal of remaining linkage and components.

7-9. Inspection and Repair

a. Inspect threaded rods for damaged threads, bent condition and other damage.

b. Inspect switch actuator for wear and damage.

c. Inspect spring for cracks, weak coils, and damage.

d. Inspect switch for proper operation and damage.

e. Repair parts if possible. Replace unserviceable parts.

7-10. Installation

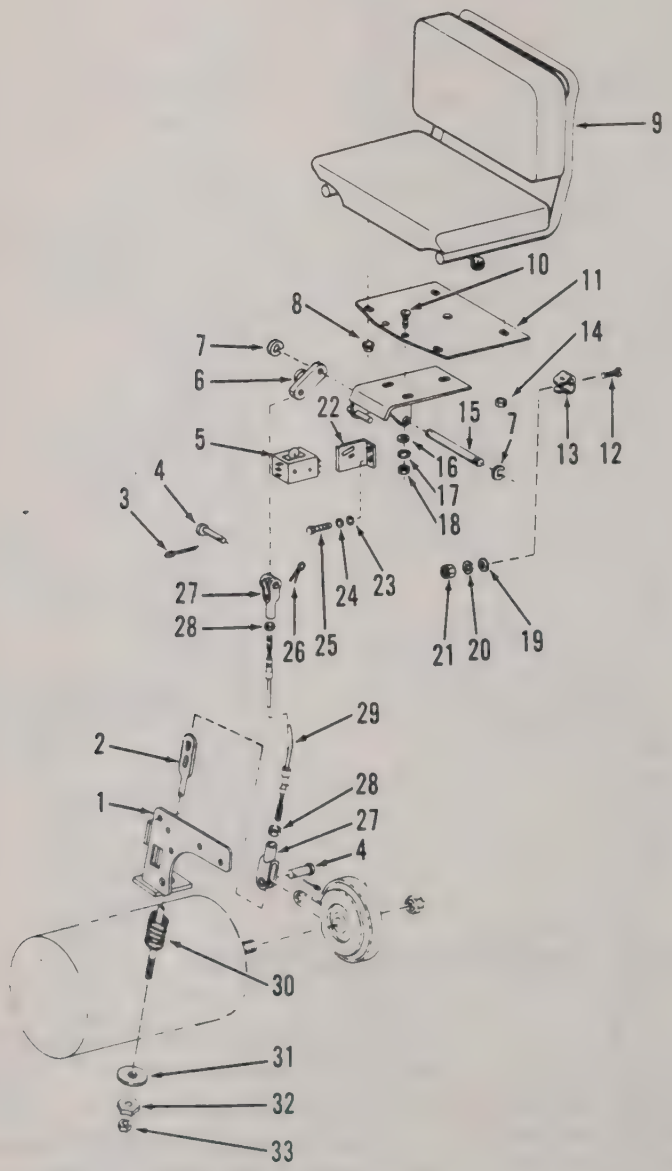
a. Refer to figure 7-2 and install linkage components.

b. Refer to TM 10-3930-628-12 and install seat and linkage.

7-11. Adjustment

a. Refer to TM 10-3930-628-12 to adjust parking brake linkage.

b. Refer to TM 10-3930-628-12 to adjust switch operation. Check operation of switch to insure proper control and truck movement.



ME 3930-628-34/7-2

1. Drive motor bracket
2. Lower rod
3. Cotter pin
4. Yoke pin
5. Seat switch
6. Switch actuator
7. Retaining ring
8. Seat bumper
9. Seat assembly
10. Screw
11. Seat plate
12. Screw
13. Seat latch
14. Flange nut
15. Shaft
16. Washer
17. Washer
18. Nut
19. Washer
20. Washer
21. Nut
22. Switch bracket
23. Washer
24. Washer
25. Screw
26. Cotter pin
27. Yoke
28. Nut
29. Linkage rod
30. Spring
31. Washer
32. Spring
33. Nut

Figure 7-2. Parking brake linkage, exploded view.

2. General

a. The operator's seat is mounted on a hinged te (fig. 7-2). Occupation of the seat lowers the t and the hinge pivots, releasing the parking ke and closing the switch.

b. Slides attached to the seat frame allow the rator to position the seat for comfortable ration. Cushions on the seat and backrest help comfort of the operator.

3. Removal

a. Refer to TM 10-3930-628-12 and figure 7-2 emove the seat assembly.

b. Disconnect and remove the stop and taillight ore removing seat.

4. Disassembly

a. Refer to figure 7-3 and disassemble the seat mbly.

b. Disconnect spring (9) from seat latch.

5. Inspection and Repair

a. Inspect cushions for tears in covering, loose mounting brackets, and other damage. Repair minor tears with tape if possible.

b. Inspect slides for bent or damaged condition. Move slide back and forth to check operation. Check spring for cracks and damage.

c. Inspect frame for bending and warped condition. Inspect welds for security. Straighten seat frame if possible. Repair welds.

d. Replace all unserviceable parts.

7-16. Assembly

a. Attach spring (9, fig. 7-3) securely to slide and latch.

b. Refer to figure 7-3 and assemble seat.

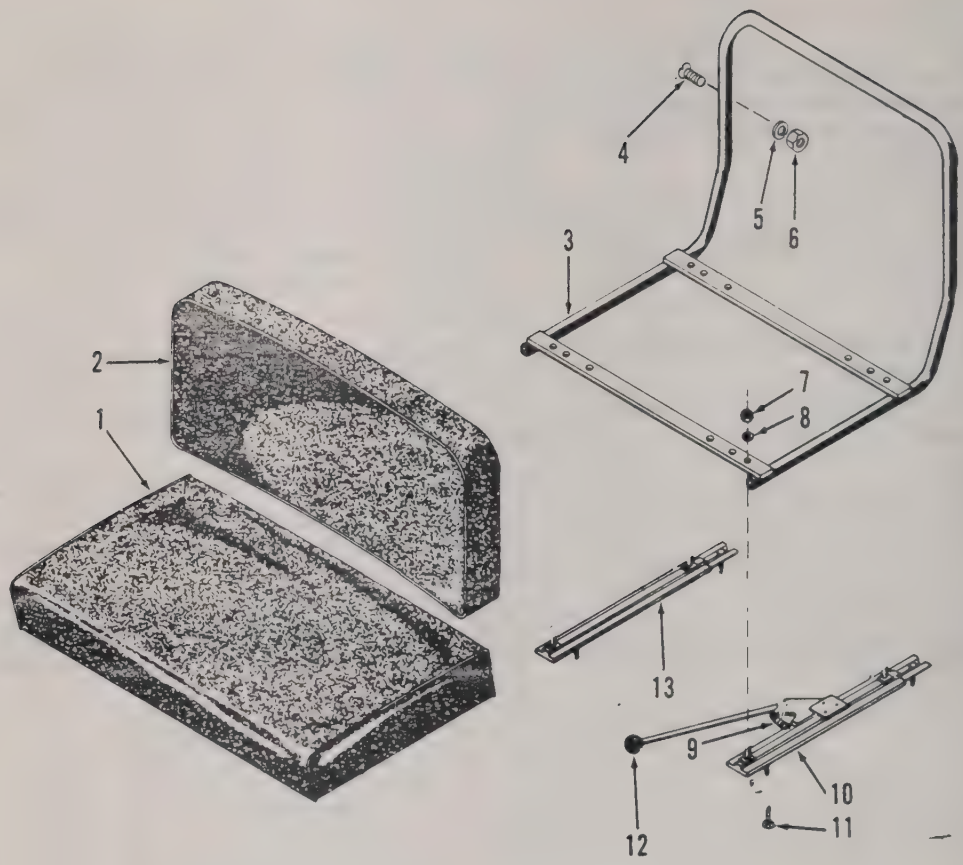
7-17. Installation

a. Refer to TM 10-3930-628-12 and figure 7-2 and install seat assembly.

b. Install and connect stop and taillight to rear of backrest.

c. Check slide and lock for proper operation.

d. Check operation of parking brake and seat switch. Adjust if necessary (TM 10-3930-628-12).



ME 3930-628-34/7-3

1. Seat cushion
2. Backrest
3. Seat frame
4. Screw
5. Washer
6. Nut
7. Nut
8. Washer
9. Latch spring
10. Left hand slide
11. Screw
12. Ball
13. Right hand slide

Figure 7-3. Seat assembly, exploded view.

APPENDIX A

REFERENCES

. Fire Protection	
TB 5-4200-200-10	Hand Portable Fire Extinguishers Approved For Army Users
. Lubrication	
C9100-IL	Fuels, Lubricants, Oils and Waxes
LO 10-3930-628-12	Lubrication Order
. Painting	
TM 9-213	Painting Instructions for Field Use
. Radio Suppression	
TM 11-483	Radio Interference Suppression
. Maintenance	
TM 38-750	Army Maintenance Management System (TAMMS)
TM 9-6140-200-15	Operation and Organizational Field and Depot Maintenance Storage Batteries, Lead Acid Type
TM 10-3930-628-12	Operator and Organizational Maintenance Manual
TM 10-3930-628-20P	Organizational Maintenance Repair Parts and Special Tools List
TM 10-3930-628-34P	DS and GS Maintenance Repair Parts and Special Tools List
Fed Spec. P-D-680	Dry Cleaning Solvent
. Shipment and Storage	
TB 740-93-2	Preservation of USAMEC Mechanical Equipment for Shipment and Storage
TM 740-90-1	Administrative Storage of Equipment
Destruction of Army Material to Prevent Enemy Use	
TM 750-244-3	Procedures for Destruction of Equipment to Prevent Enemy Use

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TM 10-3930-628-34P

TECHNICAL MANUAL

DIRECT AND GENERAL SUPPORT MAINTENANCE
REPAIR PARTS AND SPECIAL TOOLS LIST
(INCLUDING DEPOT MAINTENANCE REPAIR PARTS AND SPECIAL TOOLS)

TRUCK, LIFT, FORK, EMD, SOLID RUBBER

TIRED WHEELS, 2000 LB CAPACITY, 144 IN. LIFT

ARMY MODEL MHE219

ALLIS CHALMERS MODEL FE20-24EE

FSN 3930-151-4432

HEADQUARTERS, DEPARTMENT OF THE ARMY

APRIL 1972

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10-3930-628-34P

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Washington, D. C. *17 April 1972*

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SECTION I
INTRODUCTION

Scope

1. This manual lists repair parts, special ols, test and support equipment required the performance of direct support, neral support, and depot maintenance the fork lift truck.

b. Repair parts listed represent those thorized for use at indicated maintenance vels and will be requisitioned (on an s required'' basis until stockage is stified by demand in accordance with 710-2.

General

is Repair Parts and Special Tools List divided into the following sections:

1. *Repair Parts - Section II.* A list, in ure and item number sequence, of repair rts authorized for the performance of intenance at the direct support, general pport, and depot level, including those ms which must be removed for replace- nt of the authorized item. Items, except s and sets, are listed by assembly groups top down breakdown sequence. Repair rts kits and sets are listed separately Group 49 at the end of the Repair Parts st without regard to the assembly group which they belong. Components of the s and sets are listed in their proper quence in the assembly group to which y belong and are referenced to the FSN the kit or set.

b. Special Tools, Test and Support Equipment - Section III. A list of special tools, t and support equipment authorized for performance of maintenance at the direct pport, general support, and depot level. ot applicable.)

c. Federal Stock Number and Reference mber Index - Section IV. A list of ederal stock numbers in ascending merical sequence followed by a list of ference numbers is ascending alpha- meric sequence, cross-referenced to the ustration figure number and item number.

Explanation of Columns

e following provides an explanation of columns in the tabular lists in sections II and III:

a. Source, Maintenance, and Recoverability Code (SMR).

(1) Source code indicates the source for the listed items. Source codes are:

Code	*Explanation*
P	Repair Parts, Special Tools and Test Equipment supplied from the GSA/DSA, or Army supply system, and authorized for use at indicated maintenance levels.
P2	Repair Parts, Special Tools and Test Equipment which are procured and stocked for insurance purposes because the combat or military essentiality of the end item dictates that a minimum quantity be available in the supply system.
M	Repair Parts, Special Tools and Test Equipment which are not procured or stocked, as such, in the supply system but are to be manufactured at indicated maintenance levels.
A	Assemblies which are not procured or stocked as such; but are made up of two or more units. Such component units carry individual stock numbers and descriptions, are procured and stocked separately and can be assembled to form the required assembly at indicated maintenance levels.
X	Parts and assemblies that are not procured or stocked because the failure rate is normally below that of the applicable end item or component. The failure of such part or assembly should result in retirement of the end item from the supply system.
X1	Repair Parts which are not procured or stocked. The requirement for such items will be filled by the next higher assembly or component.
X2	Repair Parts, Special Tools and Test Equipment which are not stocked and have no foreseen mortality. The indicated maintenance level requiring such repair parts will attempt to obtain the parts through cannibalization or salvage, if not obtainable through cannibalization or salvage, the item may be requisitioned with exception data, from the end item manager, for immediate use.
G	Major assemblies that are procured with PEMA funds for initial issue only as exchange assemblies at DSU and GSU level. These assemblies will not be stocked above the DS and GS level or returned to depot supply level.

NOTE

Cannibalization or salvage may be used as a source of supply for any items source coded above except those coded X1 and aircraft support items as restricted by AR 700-42.

(2) Maintenance code indicates the lowest level of Maintenance authorized to install the listed item. Repair Parts and Special Tools assigned maintenance code "C" may be stocked at the operator level of maintenance when authorized by the Unit Commander. The maintenance level codes are:

Code	Explanation
C	Crew or Operator maintenance
O	Organizational maintenance
F	Direct Support maintenance
H	General Support maintenance
D	Depot maintenance

(3) Recoverability code indicates whether unserviceable items should be returned for recovery or salvage. Items not coded are expendable. Recoverability codes are:

Code	Explanation
R	Applied to repair parts, (assemblies and components), special tools and test equipment which are considered economically reparable at direct and general support maintenance levels. When the item is no longer economically reparable, it is normally disposed of at the GS level. When supply considerations dictate, some of these repair parts may be listed for automatic return to supply for depot level repair as set forth in AR 710-50. When so listed, they will be replaced by supply on an exchange basis.
S	Repair Parts, Special Tools, Test Equipment and assemblies which are economically reparable at DSU and GSU activities and which normally are furnished by supply on an exchange basis. When items are determined by a GSU to be uneconomically reparable, they will be evacuated to a depot for evaluation and analysis before final disposition.
T	Higher dollar value recoverable repair parts, special tools and test equipment which are subject to special handling and are issued on an exchange basis. Such items will be evacuated to the depot for overhaul or final disposition. Communications-Electronics and missile support items will be repaired/overhauled only at depots.
U	Repair Parts, Special Tools and Test Equipment specifically selected for salvage by reclamation units because of precious metal content, critical materials, high dollar value or reusable casings or castings.

b. Federal Stock Number. This column indicates the Federal stock number assigned to the item and will be used for requisitioning purposes.

c. Description. This column indicates the Federal item name and a minimum characteristic description required to describe the item. Assembly components and subassemblies are indented under major assemblies. A part number or other reference number is followed by the applicable five-digit Federal supply code for manufacturers in parenthesis. Repair part quantities included in kits and sets are shown in front of the repair part name. Material required for manufacture or fabrication is identified.

d. Unit of Measure (U/M). A two-character alphabetic abbreviation indicating the amount or quantity of the item, as used, upon which the allowances are based, e.g., ft, ea, pr, etc.

e. Quantity Incorporated in Unit. This column indicates the quantity of the item used in the assembly group. A "V" appearing in this column in lieu of a quantity indicates that a definite quantity cannot be indicated (e.g., shims, spacers, etc.).

f. Thirty-Day DS/GS Maintenance Allowance. Items authorized for use as required but not for initial stockage are identified with an asterisk in the allowance column.

g. One-Year Allowance Per 100 Equipments/Contingency Planning Purposes. Items authorized for use as required but not for initial stockage are identified with an asterisk in the allowance column.

h. Depot Maintenance Allowance Per 100 Equipments. Items authorized for use as required but not for initial stockage are identified with an asterisk in the allowance column.

i. Illustration. This column is divided as follows:

(1) *Figure number.* Indicates the figure number of the illustration on which the item is shown.

(2) *Item number.* Indicates the callout number used to reference the item in the illustration.

4. Special Information

a. Parts which require manufacture or assembly at a category higher than that authorized for installation will indicate in the source column the higher category.

b. The following publications pertain to the fork lift truck and its components.

TM 10-3930-628-12	Operator and Organizational Maintenance Manual
TM 10-3930-628-34	Direct and General Support Maintenance Manual
TM 10-3930-628-20P	Organizational Maintenance Repair Parts and Special Tools List

. How to Locate Repair Parts

a. When Federal stock number, reference umber or part numbr is unknown:

(1) Using the table of contents, deter-ine the assembly group within which the epair part belongs. This is necessary ince illustrations are prepared for as-embly groups, and listings are divided nto the same groups.

(2) Find the illustration covering the ssembly group to which the repair part elongs.

(3) Identify the repair part on the llustration and note the illustration figure umber and item number of the repair art.

(4) Using the Repair Parts Listing, nd the assembly group to which the repair art belongs and locate the illustration gure and item number noted on the il-ustration.

b. When the Federal stock number, ref-rence number, or part number is known:

(1) Using the Index of Federal Stock umbers, Reference Numbers, and/or Part umbers find the pertinent Federal stock umber, reference number, and/or part umber. This index is in ascending FSN equence followed by a list of reference numbers or part numbers in ascending alpha-numeric sequence, cross-referenced to the illustration figure number and item number.

(2) Using the Repair Parts Listing, find the assembly group of the repair part and the illustration figure number and item number referenced in the Index of Federal Stock Numbers, Reference Numbers, or Part Numbers.

6. Abbreviations

cp	candlepower
deg	degree
ea	each
ft	feet
id	inside diameter
in.	inches
JIC	Joint Industrial Commission
K	kilo - - 1000
lg	long
mfd	microfarad
mtg	mounting
No.	number
NPT	National Pipe Thread
NPTF	National Pipe Thread, Fine
NSS	not serviced separately
od	outside diameter
S	Steel
thk	thick
w/	with

7. Recommendations for Maintenance Publication Improvements

Report of errors, omissions, and recommendations for improving this publication by the individual user is encouraged. Reports should be submitted on DA Form 2028 (Recommended Changes to Publications), and forwarded direct to Commanding General, U.S. Army Mobility Equipment Command, ATTN: AMSME-MPP, 4300 Goodfellow Boulevard, St. Louis, Mo. 63120.

(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REF NUMBER & MFR CODE / USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1-YR ALW PER 100 EQUIP CNTGY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATION (a) FIG. NO	(b) ITEM NO.
	SECTION II - REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT AND DEPOT MAINTENANCE GROUP 01 - INSTRUMENT PANEL AND ASSOCIATED PARTS												
5-225-3839	SCREW, CAP, HEXAGON HEAD: clamp mounting MS90725-8 (96906)	EA	2	*	*	*	*	*	*	*	*	1	1
10-582-5965	WASHER, LOCK: clamp mounting MS35338-44 (96906)	EA	2	*	*	*	*	*	*	*	*	1	2
	CLAMP: bracket mounting 4827968 (30612)	EA	1	*	*	*	*	*	*	*	*	1	3
	BRACKET: lever 4827966 (30612)	EA	1	*	*	*	*	*	*	*	*	1	4
	ROD: lever, forward and reverse switch 4828310 (30612)	EA	1	*	*	*	*	*	*	*	*	1	5
30-758-5360	KNOB: switch lever 4822479 (30612)	EA	1	*	*	*	*	*	*	*	*	1	6
	SLEEVE: tube, switch lever 4828311 (30612)	EA	1	*	*	*	*	*	*	*	*	1	7
10-240-1008	PIN, SPRING: tube sleeve MS9048-135 (96906)	EA	2	*	*	*	*	*	*	*	*	1	8
05-958-5245	SCREW, MACHINE: box and switch mounting MS35190-288 (96906)	EA	3	*	*	*	*	*	*	*	*	1	9
10-194-9211	WASHER, LOCK: box and switch mounting MS35336-27 (96906)	EA	3	*	*	*	*	*	*	*	*	1	10
45-088-5280	METER: hour 571 (26992)	EA	1	*	*	*	*	*	*	*	*	1	11
05-054-6654	SCREW MACHINE: meter mounting MS51957-30 (96906)	EA	3	*	*	*	*	*	*	*	*	1	12
	LIGHT: indicator, green 81-5110-0112-302 (72619)	EA	1	*	*	*	*	*	*	*	*	1	13
	LAMP, INCANDESCENT: 36 volt, indicator light 7E391 (01364)	EA	1	*	*	*	*	*	*	*	*	1	14
	SWITCH: key 95522-02 (13445)	EA	1	*	*	*	*	*	*	*	*	1	15
05-050-9229	SCREW, MACHINE: instrument panel cover MS51957-63 (96906)	EA	4	*	*	*	*	*	*	*	*	1	16
10-045-4007	WASHER, LOCK: meter mounting MS35338-41 (96906)	EA	3	*	*	*	*	*	*	*	*	1	17
10-934-9747	NUT, PLAIN HEXAGON: meter mounting MS35649-262 (96906)	EA	3	*	*	*	*	*	*	*	*	1	18
	BOX: forward and reverse switch 4833115 (30612)	EA	1									1	19
	SWITCH: forward and reverse 18-386-833-401 (92392)	EA	1	*	*	*	*	*	*	*	*	1	20
	COVER: instrument panel 4827268 (30612)	EA	1	*	*	*	*	*	*	*	*	1	21
10-576-5752	WASHER, LOCK: instrument panel cover MS35333-39 (96906)	EA	4	*	*	*	*	*	*	*	*	1	22
	NUT, SHEET SPRING: instrument panel cover C575-1024-4 (78553)	EA	4	*	*	*	*	*	*	*	*	1	23
10-880-7744	NUT, PLAIN HEXAGON: bracket mounting MS51967-5 (96906)	EA	2	*	*	*	*	*	*	*	*	1	24

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REF NUMBER & MFR CODE / USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1-YR ALW PER 100 EQUIP CNTGY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATION (a) FIG. NO	(b) ITEM NO.
P O	5310-407-9566	WASHER, LOCK: bracket mounting MS35338-45 (96906)	EA	2	*	*	*	*	*	*	*	*	1	25
P O	5310-081-4219	WASHER, FLAT: bracket mounting MS27183-12 (96906)	EA	2	*	*	*	*	*	*	*	*	1	26
X2 O		BRACKET: steering gear mounting 4825008 (30612)	EA	1									1	27
P O	5305-959-2722	SCREW, MACHINE: steering gear mounting MS35190-308 (96906)	EA	2	*	*	*	*	*	*	*	*	1	28
P O	5930-253-1632	SWITCH, PUSH-PULL: headlight 7118K2 (15605)	EA	1	*	*	*	*	*	*	*	*	1	29
		GROUP 02 - HEADLIGHT AND MOUNTING PARTS												
X2 O		SPRING, HELICAL COMPRESSION: headlight mounting S5896 (72210)	EA	1									2	1
X2 O	5310-720-8819	WASHER, FLAT: headlight mounting 920754 (30612)	EA	1									2	2
P O		HEADLIGHT ASSEMBLY: truck 54-0034-00 (78422)	EA	1	*	*	*	*	*	*	*	*	2	-
P O		NUT, SELF-LOCKING: flanged 49-0645-3 (78422)	EA	1	*	*	*	*	*	*	*	*	2	3
P O		SHELL ASSEMBLY: headlight 54-0035-0 (78422)	EA	1	*	*	*	*	*	*	*	*	2	4
P O		WASHER, LOCK: knob mounting screw 53-0319-3 (78422)	EA	1	*	*	*	*	*	*	*	*	2	5
X1		SPRING: retaining, sealed beam 54-0380-0 (78422)	EA	1									2	6
P O		LAMP UNIT, HEADLIGHT: 28 volt 4589 (24455)	EA	1	*	*	*	*	*	*	*	*	2	7
X1		SCREW, MACHINE: headlight door 58-0383-3 (78422)	EA	2									2	8
P O		DOOR ASSEMBLY: headlight 54-0541-0 (78422)	EA	1	*	*	*	*	*	*	*	*	2	9
P O	5305-638-9837	SCREW, MACHINE: knob mounting MS35307-366 (96906)	EA	1	*	*	*	*	*	*	*	*	2	10
X1		STRAIN RELIEF: wiring harness 54-0599-0 (78422)	EA	1									2	11
P O		HARNESS: wiring, headlight 54-0030-0 (78422)	EA	1	*	*	*	*	*	*	*	*	2	12
X1		RESISTOR, FIXED: headlight, 4.5 ohm, 20 watts 54-0527-0 (78422)	EA	1									2	13
X1		CONDUIT: electrical 4816035 (30612)	EA	1									2	14
P O		CONNECTOR: conduit ST38F (04065)	EA	2	*	*	*	*	*	*	*	*	2	15
P O		LOCKNUT, ELECTRICAL CONDUIT: light 4460615 (30612)	EA	1	*	*	*	*	*	*	*	*	2	16
P O	5975-291-1669	CONNECTOR: conduit 2521 (59730)	EA	2	*	*	*	*	*	*	*	*	2	17
P O		CLAMP: loop, conduit CC0511 (33544)	EA	2	*	*	*	*	*	*	*	*	2	18
P O	5310-407-9566	WASHER, LOCK: clamp MS35338-45 (96906)	EA	2	*	*	*	*	*	*	*	*	2	19

(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REF NUMBER & MFR CODE / USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1-YR ALW PER 100 EQUIP CNTGY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATION (a) FIG. NO.	(b) ITEM NO.
	NUT, PLAIN HEXAGON: clamp 900366 (30612)	EA	2	*	*	*	*	*	*	*	*	2	20
5305-071-1767	SCREW, CAP, HEXAGON HEAD: bracket mounting MS90725-110 (96906)	EA	1	*	*	*	*	*	*	*	*	2	21
	WASHER, FLAT: 1/2, brass, bracket mounting 901043 (96906)	EA	1	*	*	*	*	*	*	*	*	2	22
5310-225-6993	NUT, SELF-LOCKING: bracket mounting 400D113 (93608)	EA	2	*	*	*	*	*	*	*	*	2	23
	BRACKET: mast 4775869 (30612)	EA	1									2	24
5355-014-7778	KNOB: headlight adjusting 4811119 (30612)	EA	1	*	*	*	*	*	*	*	*	2	25
5310-851-2682	NUT, PLAIN HEXAGON: knob MS35691-17 (96906)	EA	1	*	*	*	*	*	*	*	*	2	26
5310-080-6005	WASHER, FLAT: knob MS27183-14 (96906)	EA	1	*	*	*	*	*	*	*	*	2	27
	BRACKET: light 4775868 (30612)	EA	1	*	*	*	*	*	*	*	*	2	28
	GUARD: headlight 4808088 (30612)	EA	1									2	29
	STUD, WELD: headlight 4255431 (30612)	EA	1									2	30
	STUD, PLAIN: clamp mounting 4255195 (30612)	EA	2	*	*	*	*	*	*	*	*	2	31
	GROUP 03 - STOP AND TAIL LIGHT ASSEMBLY												
6220-682-8292	STOP LIGHT - TAILLIGHT, VEHICULAR: rear mounted 4803123 (30612)	EA	1	*	*	*	*	*	*	*	*	3	-
	SCREW, TAPPING, THREAD FORMING: No. 8 x 1, lens mounting 56-0243-3 (78422)	EA	2	*	*	*	*	*	*	*	*	3	1
	LENS: red, combination light 56-0228-0 (78422)	EA	1	*	*	*	*	*	*	*	*	3	2
	NUT: speed, lens mounting 56-0266-0 (78422)	EA	2	*	*	*	*	*	*	*	*	3	3
	LAMP, INCANDESCENT: 6 cp, 44 volts 110 (24455)	EA	1	*	*	*	*	*	*	*	*	3	4
	WASHER: index guide, 2 holes 49-0634-0 (78422)	EA	2	*	*	*	*	*	*	*	*	3	5
	BUSHING: rubber 56-0253-0 (78422)	EA	2	*	*	*	*	*	*	*	*	3	6
	SCREW, TAPPING, THREAD FORMING: No. 8 x 1/2, lens mounting 56-0242-3 (78422)	EA	2	*	*	*	*	*	*	*	*	3	7
	STRAP: tie, lamp mounting 56-0217-1 (78422)	EA	2	*	*	*	*	*	*	*	*	3	8
	SOCKET: lamp 61-0305-6 (78422)	EA	2	*	*	*	*	*	*	*	*	3	9
	STUD, PLAIN: tail light mounting 56-0216-1 (78422)	EA	2	*	*	*	*	*	*	*	*	3	10
	NUT, PLAIN HEXAGON: 1/4-20; stud 49-0642-3 (78422)	EA	2	*	*	*	*	*	*	*	*	3	11

(1) SMR. CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REF NUMBER & MFR CODE	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1-YR ALW PER 100 EQUIP CNTGY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATION (a) FIG. NO.	(b) ITEM NO.
P O		WASHER, LOCK: 1/4, stud 53-0318-3 (78422)		EA	2	*	*	*	*	*	*	*	*	3	12
P O		BUSHING: stud 54-0567-0 (78422)		EA	2	*	*	*	*	*	*	*	*	3	13
P O		SHELL: lamp 56-0200-0 (78422)		EA	1	*	*	*	*	*	*	*	*	3	14
P O		RING: stud 54-0568-0 (78422)		EA	2	*	*	*	*	*	*	*	*	3	15
P O		WASHER, FLAT: stud 54-0566-0 (78422)		EA	2	*	*	*	*	*	*	*	*	3	16
P O		NUT, SELF-LOCKING: 1/4-20, lamp mounting 54-0395-3 (78422)		EA	2	*	*	*	*	*	*	*	*	3	17
P O	6240-299-3985	LAMP, INCANDESCENT: 21 cp, 44 volts 1150 (79500)		EA	1	*	*	*	*	*	*	*	*	3	18
P O	5340-996-6568	ANCHOR: conduit box, w/screw 2705-2 (83858)		EA	2	*	*	*	*	*	*	*	*	3	19
P O		BOX: conduit, light mounting 4803128 (30612)		EA	1	*	*	*	*	*	*	*	*	3	20
P O	5310-014-5850	WASHER, FLAT: conduit box mounting MS27183-42 (96906)		EA	1	*	*	*	*	*	*	*	*	3	21
P O		COVER: conduit box, w/screws 4803181 (30612)		EA	1	*	*	*	*	*	*	*	*	3	22
P O		CONNECTOR: conduit, light 2521 (59730)		EA	1	*	*	*	*	*	*	*	*	3	23
P O		CLAMP, LOOP: wire C01013 (33544)		EA	2	*	*	*	*	*	*	*	*	3	24
P O		CONNECTOR, ELECTRICAL: light 321235 (02260)		EA	3	*	*	*	*	*	*	*	*	3	25
		GROUP 04 - BATTERY CONNECTOR AND HORN GROUP													
P O	5305-958-5469	SCREW, MACHINE: horn mounting MS35190-305 (96906)		EA	1	*	*	*	*	*	*	*	*	4	1
P O	5310-081-4219	WASHER, FLAT: horn mounting MS27183-12 (96906)		EA	1	*	*	*	*	*	*	*	*	4	2
P O	5310-407-9566	WASHER, LOCK: horn mounting MS35338-43 (96906)		EA	1	*	*	*	*	*	*	*	*	4	3
P O	5310-880-7744	NUT, PLAIN HEXAGON: horn mounting MS51967-5 (96906)		EA	1	*	*	*	*	*	*	*	*	4	4
P O		HORN ASSEMBLY 4784114 (30612)		EA	1	*	*	*	*	*	*	*	*	4	5
P O	6140-789-7189	BATTERY CONNECTOR: EM type, locking half 5810B (80495)		EA	1	*	*	*	*	*	*	*	*	4	6
X1		SCREW, MACHINE: No. 10-24 x 1, block mounting 5833 (80495) (Component of PARTS KIT - 4998844)		EA	2									4	7
X1		CASE: connector, locking half 5840 (80495)		EA	1									4	8
X1		SCREW, MACHINE: No. 10-24 x 5/8, contact mounting 5834 (80495) (Component of PARTS KIT - 4998844)		EA	2									4	9

(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REF NUMBER & MFR CODE / USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1-YR ALW PER 100 EQUIP CNTGY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATION (a) FIG. NO.	(b) ITEM NO.
	BLOCK: contact, outer 5837 (80495) (Component of PARTS KIT - 4998844)	EA	1									4	10
	SPRING, HELICAL COMPRESSION: contact 5839 (80495) (Component of PARTS KIT - 3930-019-1047)	EA	2									4	11
	CONTACT: electrical 5849 (80495) (Component of PARTS KIT - 3930-019-1047)	EA	2	*	*	*	*	*	*	*	*	4	12
	RING, RETAINER: contact 5843 (80495) (Component of PARTS KIT - 3930-019-1047)	EA	2									4	13
	BLOCK: contact, inner 4994046 (30612) (Component of PARTS KIT - 4998844)	EA	1									4	14
3930-078-5924	CONNECTOR: battery, EM type, mounting half 5816B (80495)	EA	1	*	*	*	*	*	*	*	■	4	15
	BLOCK: contactor inner 4994046 (30612) (Component of PARTS KIT - 4998844)	EA	1									4	16
	RING, RETAINER: contact mounting 5843 (80495) (Component of PARTS KIT - 3930-019-1047)	EA	■									4	17
	CONTACT: electrical 5849 (80495) (Component of PARTS KIT - 3930-019-1047)	EA	2									4	18
	SPRING, HELICAL COMPRESSION: contact 5839 (80495) (Component of PARTS KIT - 3930-019-1047)	EA	2									4	19
	BLOCK: contactor, outer 5837 (80495) (Component of PARTS KIT - 4998844)	EA	1									4	20
	SCREW, MACHINE: No. 10-24 x 5/8, contact mounting 5834 (80495) (Component of PARTS KIT - 4998844)	EA	2									4	21
	CASE: connector, mounting half 5842 (80495)	EA	1	*	*	*	*	*	*	*	■	4	22
	SCREW, MACHINE: No. 10-24 x 1, block mounting 5833 (80495) (Component of PARTS KIT - 4998844)	EA	2									4	23
5310-761-6882	NUT, PLAIN, HEXAGON: case mounting MS51967-2 (96906)	EA	4	*	*	*	*	*	*	*	*	4	24
5310-582-5965	WASHER, LOCK: case mounting MS35338-44 (96906)	EA	4	*	*	*	*	*	*	*	*	4	25
	SCREW, MACHINE: case mounting MS35190-291 (96906)	EA	4	*	*	*	*	*	*	*	*	4	26

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		GROUP 05 - DRIVE AXLE HOUSING AND SHAFTS													
P F		PIN, GROOVED, HEADLESS: 7/16 x 7/8, axle housing 918567 (30612)		EA	4	*	*	*	*	*	*	*	*	5	1
P F	2520-073-2609	GASKET: housing cover 4716827 (30612)		EA	1	*	*	*	*	*	*	*	*	5	2
P F	5310-407-9566	WASHER, LOCK: cover mounting MS35338-45 (96906)		EA	10	*	*	*	*	*	*	*	*	5	3
P F	5305-151-8682	BOLT, MACHINE: self-locking, cover mounting 926593 (30612)		EA	2	*	*	*	*	*	*	*	*	5	4
P F		BOLT, MACHINE: self-locking, 5/16-18 x 3/4, cover mounting 926594 (30612)		EA	7	*	*	*	*	*	*	*	*	5	5
P F		COVER: housing axle 4710053 (30612)		EA	1	*	*	*	*	*	*	*	*	5	6
P F		SCREW, CAP, HEXAGON HEAD: 5/16-18 x 1-3/8, cover mounting 926596 (30612)		EA	1	*	*	*	*	*	*	*	*	5	7
P F		HOUSING: axle 4744948 (30612)		EA	1	*	*	*	*	*	*	*	*	5	8
P O		PLATE: backing, brake 4776258 (30612)		EA	2	*	*	*	*	*	*	*	*	5	9
P O	2530-714-3113	PLUG, RUBBER: backing plate FC17814 (63477)		EA	4	*	*	*	*	*	*	*	*	5	10
P O	5310-407-9566	WASHER, LOCK: plate mounting MS35338-45 (96906)		EA	10	*	*	*	*	*	*	*	*	5	11
P O	5305-225-8497	SCREW, CAP, HEXAGON HEAD: plate mounting MS90725-32 (96906)		EA	10	*	*	*	*	*	*	*	*	5	12
P O		SHIELD, DUST: axle housing 4747623 (30612)		EA	2	*	*	*	*	*	*	*	*	5	13
P O	5305-068-0500	SCREW, CAP, HEXAGON HEAD: dust shield MS90725-3 (96906)		EA	4	*	*	*	*	*	*	*	*	5	14
P O	5310-582-5965	WASHER, LOCK: dust shield MS35338-44 (96906)		EA	4	*	*	*	*	*	*	*	*	5	15
P F		SHAFT: axle,drive axles 4823981 (30612)		EA	2	*	*	*	*	*	*	*	*	5	16
P F	5305-269-3211	SCREW, CAP, HEXAGON HEAD: axle cap MS90725-60 (96906)		EA	4	*	*	*	*	*	*	*	*	5	17
P F	5310-637-9541	WASHER, LOCK: axle cap MS35338-46 (96906)		EA	4	*	*	*	*	*	*	*	*	5	18
P F		RETAINER: bearing 4707234 (30612)		EA	2	*	*	*	*	*	*	*	*	5	19
P F	5330-739-3160	SEAL, OIL: axle shaft 4253297 (30612)		EA	2	*	*	*	*	*	*	*	*	5	20
P F	3110-100-9865	CONE AND ROLLERS, TAPERED ROLLER BEARING: axle shaft 4253254 (30612)		EA	4	*	*	*	*	*	*	*	*	5	21
P F	3110-143-7571	CUP, TAPERED ROLLER BEARING: axle shaft 4253253 (30612)		EA	2	*	*	*	*	*	*	*	*	5	22
P F	5310-151-5483	WASHER, KEY: axle shaft 4254773 (30612)		EA	2	*	*	*	*	*	*	*	*	5	23
P F	5310-126-5258	WASHER, KEY: axle shaft 4253299 (30612)		EA	2	*	*	*	*	*	*	*	*	5	24
P F	5310-168-7354	NUT, PLAIN ROUND: axle shaft 4331040 (30612)		EA	2	*	*	*	*	*	*	*	*	5	25

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	NUT, SELF-LOCKING: inner spindle 4747307 (30612)	EA	2	*	*	*	*	*	*	*	*	5	26
	SHIELD: grease, inner spindle 4747310 (30612)	EA	2	*	*	*	*	*	*	*	*	5	27
	SPINDLE: axle housing 4747716 (30612)	EA	2	*	*	*	*	*	*	*	*	5	28
	WASHER, FLAT: adjusting nut 4750075 (30612)	EA	2	*	*	*	*	*	*	*	*	5	29
	NUT, SLOTTED, HEXAGON: spindle 912624 (30612)	EA	2	*	*	*	*	*	*	*	*	5	30
5315-849-9854	PIN, COTTER: spindle nut MS24665-498 (96906)	EA	2	*	*	*	*	*	*	*	*	5	31
	SCREW, CAP: 7/8-9 x 3, 12 point head, axle housing mounting 927411 (30612)	EA	6	*	*	*	*	*	*	*	*	5	32
5310-809-8540	WASHER, FLAT: axle housing mounting 4816184 (30612)	EA	14	*	*	*	*	*	*	*	*	5	33
	SCREW, CAP: 7/8-9 x 2, 12 point head, axle housing mounting 922519 (30612)	EA	2	*	*	*	*	*	*	*	*	5	34
5310-945-2518	NUT, PLAIN, HEXAGON: axle housing mounting MS51967-25 (96906)	EA	6	*	*	*	*	*	*	*	*	5	35
4730-127-2624	PLUG, PIPE: axle housing 444788 (24617)	EA	1	*	*	*	*	*	*	*	*	5	36
4730-808-6849	BREATHER: differential 131000 (70270)	EA	1	*	*	*	*	*	*	*	*	5	37
4730-289-5176	PLUG, DRAIN: magnetic MS49006-8 (96906)	EA	1	*	*	*	*	*	*	*	*	5	38
5330-739-3160	SEAL, OIL: axle shaft 200W16M1 (80201)	EA	2	*	*	*	*	*	*	*	*	5	39
	GROUP 06 - DIFFERENTIAL AND DRIVE MOTOR ASSEMBLY												
	STUD: differential carrier 4778770 (30612)	EA	9	*	*	*	*	*	*	*	*	6	1
	STUD: differential carrier 4778771 (30612)	EA	1	*	*	*	*	*	*	*	*	6	2
2520-919-9776	GASKET: carrier 4707440 (30612)	EA	1	*	*	*	*	*	*	*	*	6	3
5310-842-7783	NUT, SLOTTED: shaft, drive end MS35692-53 (96906)	EA	1	*	*	*	*	*	*	*	*	6	4
5315-012-0128	PIN, COTTER: slotted nut MS24665-355 (96906)	EA	1	*	*	*	*	*	*	*	*	6	5
	GEAR SET: ring gear and pinion 4778780 (30612)	EA	1	*	*	*	*	*	*	*	*	6	6
5315-276-5160	PIN, STRAIGHT, HEADLESS: grooved, bearing cap MS35671-62 (96906)	EA	2	*	*	*	*	*	*	*	*	6	7
	KEY, MACHINE: 1/4 x 1/4 x 1-3/8, pinion to shaft 905855 (30612)	EA	1	*	*	*	*	*	*	*	*	6	8
2520-678-3698	NUT: bearing adjusting 3707303 (11862)	EA	2	*	*	*	*	*	*	*	*	6	9
3110-227-2160	CONE AND ROLLERS, TAPERED ROLLER BEARINGS: differential 17886 (60038)	EA	2	*	*	*	*	*	*	*	*	6	10

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P F	2520-919-9776	CUP, TAPERED ROLLER BEARING: differential 17831 (60038)	EA	2	*	*	*	*	*	*	*	*	6	11
P F		HOUSING ASSEMBLY: differential, includes bearing caps 4809219 (30612)	EA	1	*	*	*	*	*	*	*	*	6	12
P F		PACKING, PREFORMED: housing 4255221 (30612)	EA	1	*	*	*	*	*	*	*	*	6	13
P F		SHIM: 0.003, differential carrier housing 4778774 (30612)	EA	V	*	*	*	*	*	*	*	*	6	14
P F		SHIM: 0.005, differential carrier housing 4778775 (30612)	EA	V	*	*	*	*	*	*	*	*	6	14
P F		SHIM: 0.010, differential carrier housing 4778776 (30612)	EA	V	*	*	*	*	*	*	*	*	6	14
P F		SHIM: 0.020, differential carrier housing 4778777 (30612)	EA	V	*	*	*	*	*	*	*	*	6	14
P F		PIN, SPRING: housing to drive motor 922419 (30612)	EA	1	*	*	*	*	*	*	*	*	6	15
P F	5310-209-0965	WASHER, LOCK: 7/16, stud, carrier mounting MS35338-47 (96906)	EA	9	*	*	*	*	*	*	*	*	6	16
P F	5310-834-8734	NUT, PLAIN HEXAGON: stud, carrier mounting MS35690-37 (96906)	EA	9	*	*	*	*	*	*	*	*	6	17
P F	5310-637-9541	WASHER, LOCK: drive motor mounting MS35338-46 (96906)	EA	4	*	*	*	*	*	*	*	*	6	18
P F	5305-269-3213	SCREW, CAP, HEXAGON HEAD: drive motor mtg MS90725-62 (96906)	EA	4	*	*	*	*	*	*	*	*	6	19
P2 FR		MOTOR: drive 725B4 (88310)	EA	1	*	*	*	*	*	*	*	*	6	20
P F		BRAKE: parking AC5314 (87134)	EA	1	*	*	*	*	*	*	*	*	6	21
P F		NUT, SELF-LOCKING: brake mounting 4254978 (30612)	EA	1	*	*	*	*	*	*	*	*	6	22
P F	5310-880-7744	NUT, PLAIN, HEXAGON: stud, housing mounting MS51967-5 (96906)	EA	1	*	*	*	*	*	*	*	*	6	23
P F	5310-407-9566	WASHER, LOCK: stud, housing mounting MS35338-45 (96906)	EA	1	*	*	*	*	*	*	*	*	6	24
P F	5310-681-4219	WASHER, FLAT: stud MS27183-12 (96906)	EA	1	*	*	*	*	*	*	*	*	6	25
P F		SCREW, CAP, HEXAGON HEAD: bearing cap, drilled head 4377201 (30612)	EA	4	*	*	*	*	*	*	*	*	6	26
P F	2520-331-0353	LOCK: adjusting nut 3705726 (24617)	EA	2	*	*	*	*	*	*	*	*	6	27
P F	5310-407-9566	WASHER, LOCK: nut lock MS35338-45 (96906)	EA	2	*	*	*	*	*	*	*	*	6	28
P F	5305-225-8496	SCREW, CAP, HEXAGON HEAD: adjusting nut lock MS90725-31 (96906)	EA	2	*	*	*	*	*	*	*	*	6	29
P F		LOCKWIRE: cap screw, bearing cap mounting 4737615 (30612)	EA	2	*	*	*	*	*	*	*	*	6	30
P F	5305-269-2800	SCREW, CAP, HEXAGON HEAD: ring gear to differential 4736866 (30612)	EA	10	*	*	*	*	*	*	*	*	6	31
X2 F		LOCKWIRE: ring gear to differential 4737617 (30612)	EA	1									6	32

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	DIFFERENTIAL ASSEMBLY: 2 pinion 4824262 (30612)		EA	1	*	*	*	*	*	*	*	*	6	33
520-359-0195	WASHER, THRUST: pinion 4707711 (30612)		EA	2	*	*	*	*	*	*	*	*	6	34
	GEAR, BEVEL: side differential 14-04-032-001 (79410)		EA	2	*	*	*	*	*	*	*	*	6	35
	SHAFT: side pinion WA31A (79410)		EA	1	*	*	*	*	*	*	*	*	6	36
	PIN, STRAIGHT, HEADLESS: differential case 917023 (30612)		EA	1	*	*	*	*	*	*	*	*	6	37
	GEAR, BEVEL: side differential 14-04-033-001 (79410)		EA	2	*	*	*	*	*	*	*	*	6	38
520-359-0146	WASHER, THRUST: side gear A5751 (79410)		EA	2	*	*	*	*	*	*	*	*	6	39
	CASE ASSEMBLY: differential 4906405 (30612)		EA	1	*	*	*	*	*	*	*	*	6	40
305-225-8506	SCREW, CAP, HEXAGON HEAD: MS90725-42 (96906)		EA	8	*	*	*	*	*	*	*	*	6	41
	LOCK: screw 14-04-056-001 (79410)		EA	4	*	*	*	*	*	*	*	*	6	42
	RELAY, THERMAL 4805700 (30612)		EA	1	*	*	*	*	*	*	*	*	6	43
	SCREW, MACHINE: 8-32 x 1/4, relay mounting MS51957-41 (96906)		EA	2	*	*	*	*	*	*	*	*	6	44
	WASHER, LOCK: No. 8, relay mounting MS35338-42 (96906)		EA	2	*	*	*	*	*	*	*	*	6	45
	STRAP: ground 4801855 (30612)		EA	2	*	*	*	*	*	*	*	*	6	46
	GROUP 07 - STEERING AXLE													
	STEERING AXLE ASSEMBLY: 4823101 (30612)		EA	1	*	*	*	*	*	*	*	*	7	-
	TIE ROD, STEERING: steering axle H22990 (72210)		EA	2	*	*	*	*	*	*	*	*	7	1
530-580-7070	PLUG, ADJUSTING: tie rod end S1233 (72210)		EA	2	*	*	*	*	*	*	*	*	7	2
530-230-9792	BALL, SEAT: tie rod end S5340 (72210)		EA	2	*	*	*	*	*	*	*	*	7	3
530-546-2433	SPRING, HELICAL COMPRESSION: tie rod end S5306 (72210)		EA	2	*	*	*	*	*	*	*	*	7	4
315-011-9120	PIN, COTTER: adjusting plug MS24665-287 (96906)		EA	2	*	*	*	*	*	*	*	*	7	5
730-050-4207	FITTING, LUBRICATION: 1/4-29, 90 deg. tie rod 1911B (70270)		EA	4	*	*	*	*	*	*	*	*	7	6
	ROD, THREADED END: tie rod NSS		EA	2									7	7
310-842-1190	NUT, PLAIN HEXAGON: tie rod end adjustment MS35691-61 (96906)		EA	2	*	*	*	*	*	*	*	*	7	8
530-075-0157	TIE ROD END, STEERING: w/cover and slotted nut S16081 (72210)		EA	2	*	*	*	*	*	*	*	*	7	9
	COVER: tie rod end S10534 (72210)		EA	2	*	*	*	*	*	*	*	*	7	10

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P F		NUT, SLOTTED HEXAGON: 9/16-18, tie rod end 917361 (30612)	EA	2	*	*	*	*	*	*	*	*	7	11
P F	5305-071-1772	SCREW, CAP, HEXAGON HEAD: steering axle housing to frame MS90726-119 (96906)	EA	4	*	*	*	*	*	*	*	*	7	12
P F		SPACER: rear, steering axle 4823120 (30612)	EA	1	*	*	*	*	*	*	*	*	7	13
P F		HOUSING: steering axle 4828662 (30612)	EA	2	*	*	*	*	*	*	*	*	7	14
P F	5310-754-2005	WASHER, LOCK: housing to frame MS35338-52 (96906)	EA	4	*	*	*	*	*	*	*	*	7	15
P F	5310-732-0560	NUT, PLAIN HEXAGON: housing to frame MS51968-14 (96906)	EA	4	*	*	*	*	*	*	*	*	7	16
P F	3110-159-9382	BEARING, THRUST: steering pivot T77 (60038)	EA	2	*	*	*	*	*	*	*	*	7	17
P F	5315-012-0123	PIN, COTTER MS24665-355 (96906)	EA	2	*	*	*	*	*	*	*	*	7	18
P F		SPINDLE, LEFT HAND: axle assembly 4823103 (30612)	EA	1	*	*	*	*	*	*	*	*	7	19
P F	5315-844-5836	PIN, SPRING: axle spindle MS16562-65 (96906)	EA	2	*	*	*	*	*	*	*	*	7	20
P F	5340-197-0385	PLUG, EXPANSION: king pin MS35648-2 (96906)	EA	4	*	*	*	*	*	*	*	*	7	21
P F	3110-183-6730	BEARING, ROLLER, NEEDLE: king pin B121204 (80648)	EA	4	*	*	*	*	*	*	*	*	7	22
P O	4730-223-6421	FITTING, LUBRICATION: 1/8 taper thd, straight 205000 (75667)	EA	5	*	*	*	*	*	*	*	*	7	23
P F	5365-151-7130	RING, RETAINING: pivot bearing, lower NAN181 (80900)	EA	1	*	*	*	*	*	*	*	*	7	24
P F		CUP, TAPERED ROLLER BEARING: pivot bearing, lower LM12711 (60038)	EA	1	*	*	*	*	*	*	*	*	7	25
P F		CONE AND ROLLERS, TAPERED ROLLER BEARING: pivot bearing, lower LM12749 (60038)	EA	1	*	*	*	*	*	*	*	*	7	26
P F		SEAL, PLAIN: pivot bearing, lower 927932 (30612)	EA	1	*	*	*	*	*	*	*	*	7	27
P F		WASHER: bearing adjust 4823113 (30612)	EA	1	*	*	*	*	*	*	*	*	7	28
P F	5310-168-7350	NUT, PLAIN HEXAGON: pivot bearing adjust 4808392 (30612)	EA	1	*	*	*	*	*	*	*	*	7	29
P F	3110-182-8635	BEARING, ROLLER: axle mounting 15SF4X8 (80648)	EA	2	*	*	*	*	*	*	*	*	7	30
P F		SPACER: front, steering axle 4823121 (30612)	EA	1	*	*	*	*	*	*	*	*	7	31
P F	5310-584-7888	WASHER, LOCK: axle adjust MS35338-51 (96906)	EA	1	*	*	*	*	*	*	*	*	7	32
P F	5310-838-1702	NUT, PLAIN HEXAGON: axle adjust MS35691-57 (96906)	EA	1	*	*	*	*	*	*	*	*	7	33
P F	5305-958-8995	SCREW, CAP, HEXAGON HEAD MS90725-188 (96906)	EA	1	*	*	*	*	*	*	*	*	7	34
P O	4730-172-0034	FITTING, LUBRICATION: 1/8, 90 deg., axle bearing 205400 (75677)	EA	2	*	*	*	*	*	*	*	*	7	35

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	SPINDLE, RIGHT HAND: axle assembly 4823102 (30612)	EA	1	*	*	*	*	*	*	*	*	7	36
	CUP, TAPERED ROLLER BEARING: pivot bearing, upper L68111 (60038)	EA	1	*	*	*	*	*	*	*	*	7	37
	CONE AND ROLLERS, TAPERED ROLLER BEARING: pivot bearing, upper L68140 (60038)	EA	1	*	*	*	*	*	*	*	*	7	38
	SEAL, PLAIN: pivot bearing, upper 927933 (30612)	EA	1	*	*	*	*	*	*	*	*	7	39
	ARM, PIVOT: pivot arm assembly 4823108 (30612)	EA	1	*	*	*	*	*	*	*	*	7	40
5-068-0502	SCREW, CAP, HEXAGON HEAD: axle adjusting MS90725-6 (96906)	EA	2	*	*	*	*	*	*	*	*	7	41
0-851-2674	NUT, PLAIN HEXAGON: axle adjusting MS35691-1 (96906)	EA	2	*	*	*	*	*	*	*	*	7	42
	AXLE ASSEMBLY: steering 4823101 (30612)	EA	1	*	*	*	*	*	*	*	*	7	43
	PIN, KING: spindle 4823104 (30612)	EA	2	*	*	*	*	*	*	*	*	7	44
	GROUP 08 - PARKING BRAKE ASSEMBLY												
	BRAKE ASSEMBLY: parking 4808653 (30612)	EA	1	*	*	*	*	*	*	*	*	8	-
	DRUM: brake A5384 (87134) 4999879-2	EA	1	*	*	*	*	*	*	*	*	8	1
	SPRING, HELICAL EXTENSION: shoe return A4709A (87134) 4999877-6 (Component of PARTS KIT - 4999874)	EA	2									8	2
	SHOE: brake A5437-2 (87134) (Component of PARTS KIT - 4999874)	EA	2									8	3
	BLOCK: drive insert 4906301 (30612) 4906301	EA	2									8	4
*	PLATE: mounting A5168 (87134) 4906302-7	EA	1	*	*	*	*	*	*	*	*	8	5
	LEVER: actuating A5387 (87134) 4999871-9	EA	1	*	*	*	*	*	*	*	*	8	6
*	ARM: actuating A4663 (87134) 4906300-1	EA	2	*	*	*	*	*	*	*	*	8	7
	KEY, MACHINE: 1/4 x 1/4 x 1-3/8, drum mounting MS20066-323 (96906)	EA	1	*	*	*	*	*	*	*	*	8	8
	GROUP 09 - SEAT BRAKE												
	BLOCK: tension 4809436 (30612)	EA	1	*	*	*	*	*	*	*	*	9	1
0-811-6643	RING, RETAINING: shaft 5133-50 (79136)	EA	2	*	*	*	*	*	*	*	*	9	2
	PLATE: seat mounting 4788326 (30612)	EA	1	*	*	*	*	*	*	*	*	9	3
5-984-5676	SCREW, MACHINE: plate to hinge MS35206-296 (96906)	EA	3	*	*	*	*	*	*	*	*	9	4
	HINGE ASSEMBLY: seat 4810806 (30612)	EA	1	*	*	*	*	*	*	*	*	9	5

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P O		LATCH: hinge 4810809 (30612)	EA	1	*	*	*	*	*	*	*	*	9	6
P O	5305-071-1315	SCREW, MACHINE: latch mounting MS51957-79 (30612)	EA	2	*	*	*	*	*	*	*	*	9	7
P O	5310-088-0553	NUT, SELF-LOCKING: seat to plate MS21044HS (96906)	EA	4	*	*	*	*	*	*	*	*	9	8
P O		SHAFT: seat pivot 4794999 (30612)	EA	1	*	*	*	*	*	*	*	*	9	9
P O		WASHER, FLAT: shaft mounting 912333 (30612)	EA	1	*	*	*	*	*	*	*	*	9	10
P O	5310-509-5998	WASHER, FLAT: latch mounting MS27183-18 (96906)	EA	2	*	*	*	*	*	*	*	*	9	11
P O	5310-209-0786	WASHER, LOCK: latch mounting MS35335-33 (96906)	EA	2	*	*	*	*	*	*	*	*	9	12
P O	5310-761-6882	NUT, PLAIN HEXAGON: latch mounting MS51967-2 (96906)	EA	2	*	*	*	*	*	*	*	*	9	13
P O	5310-081-4219	WASHER, FLAT: plate to hinge MS27183-12 (96906)	EA	3	*	*	*	*	*	*	*	*	9	14
P O	5310-514-6674	WASHER, LOCK: plate to hinge MS35335-34 (96906)	EA	3	*	*	*	*	*	*	*	*	9	15
P O	5310-088-7744	NUT, PLAIN HEXAGON: plate to hinge MS51967-5 (96906)	EA	3	*	*	*	*	*	*	*	*	9	16
P O		BRACKET: switch mounting 4810343 (30612)	EA	1	*	*	*	*	*	*	*	*	9	17
P O		SWITCH: limit, seat 4810157 (30612)	EA	1	*	*	*	*	*	*	*	*	9	18
P O	5310-809-4058	WASHER, FLAT: bracket mounting MS27183-10 (96906)	EA	2	*	*	*	*	*	*	*	*	9	19
P O	5310-582-5965	WASHER, LOCK: bracket mounting MS35338-44 (96906)	EA	2	*	*	*	*	*	*	*	*	9	20
P O	5305-068-0500	SCREW, CAP, HEXAGON HEAD: bracket mounting MS90725-3 (96906)	EA	2	*	*	*	*	*	*	*	*	9	21
P O	5340-985-0823	CLEVIS, ROD END: seat brake linkage MS35812-4 (96906)	EA	2	*	*	*	*	*	*	*	*	9	22
P O	5310-853-9335	NUT, PLAIN HEXAGON: jam, clevis MS35691-13 (96906)	EA	2	*	*	*	*	*	*	*	*	9	23
P O		ROD: seat brake linkage 4810808 (30612)	EA	1	*	*	*	*	*	*	*	*	9	24
P O	5306-225-9091	SCREW, CAP, HEXAGON HEAD: brake bracket mounting MS90726-36 (96906)	EA	3	*	*	*	*	*	*	*	*	9	25
P O	5310-087-7493	WASHER, FLAT: brake bracket mounting MS27183-13 (96906)	EA	3	*	*	*	*	*	*	*	*	9	26
P O	5315-815-8840	PIN, STRAIGHT HEADLESS: clevis MS35810-34 (96906)	EA	2	*	*	*	*	*	*	*	*	9	27
P O	5315-842-3044	PIN, COTTER: clevis pin MS24665-283 (96906)	EA	2	*	*	*	*	*	*	*	*	9	28
P O		SPRING, HELICAL COMPRESSION: brake 4778751 (30612)	EA	1	*	*	*	*	*	*	*	*	9	29
P O		RETAINER: spring 4791984 (30612)	EA	1	*	*	*	*	*	*	*	*	9	30
P O	5310-834-8732	NUT, PLAIN HEXAGON: spring rod MS35691-33 (96906)	EA	1	*	*	*	*	*	*	*	*	9	31
P O		BRACKET: seat brake 4828165 (30612)	EA	1	*	*	*	*	*	*	*	*	9	32

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	ROD ASSEMBLY: seat brake 4784076 (30612)		EA	1	*	*	*	*	*	*	*	*	9	33
80-6004	WASHER, FLAT: spring rod MS27183-14 (96906)		EA	1	*	*	*	*	*	*	*	*	9	34
	GROUP 10 - BRAKE PEDAL ASSEMBLY AND ASSOCIATED PARTS													
	ROD: cylinder 4794979 (30612)		EA	1	*	*	*	*	*	*	*	*	10	1
35-2036	NUT, PLAIN HEXAGON: jam, pushrod MS35691-29 (96906)		EA	1	*	*	*	*	*	*	*	*	10	2
	PEDAL ASSEMBLY: brake 4798893 (30612)		EA	1	*	*	*	*	*	*	*	*	10	-
	PEDAL, CONTROL: brake 4795056 (30612)		EA	1	*	*	*	*	*	*	*	*	10	3
	PIN, STRAIGHT, HEADLESS: 1/2 x 5-1/4, grooved, pedal pivoting 4805015 (30612)		EA	1	*	*	*	*	*	*	*	*	10	4
	PAD ASSEMBLY: brake pedal 4824665 (30612)		EA	1									10	-
	PAD, PEDAL: brake 3032 (92850)		EA	1	*	*	*	*	*	*	*	*	10	5
	SUPPORT: pad 4824663 (30612)		EA	1	*	*	*	*	*	*	*	*	10	6
99-9151	NUT, PLAIN, HEXAGON: pad mounting MS51967-13 (96906)		EA	1	*	*	*	*	*	*	*	*	10	7
84-5272	WASHER, LOCK: pad mounting MS35338-48 (96906)		EA	1	*	*	*	*	*	*	*	*	10	8
80-6005	WASHER, FLAT: pad mounting MS27183-14 (96906)		EA	1	*	*	*	*	*	*	*	*	10	9
	BUMPER, RUBBER 4788327 (30612)		EA	1	*	*	*	*	*	*	*	*	10	10
	NUT, PLAIN, HEXAGON: 5/16-18, jam 900366 (30612)		EA	1	*	*	*	*	*	*	*	*	10	11
14-6674	WASHER, LOCK: bumper mounting MS35335-34 (96906)		EA	1	*	*	*	*	*	*	*	*	10	12
87-7493	WASHER, FLAT: bumper mounting MS27183-13 (96906)		EA	1	*	*	*	*	*	*	*	*	10	13
25-8502	SCREW, CAP, HEXAGON HEAD: bumper mounting MS90725-38 (96906)		EA	1	*	*	*	*	*	*	*	*	10	14
	PIN, STRAIGHT, HEADLESS: pillow block mounting 4795004 (30612)		EA	1	*	*	*	*	*	*	*	*	10	15
11-6643	RING, RETAINING: pin mounting 5133-50 (79136)		EA	2	*	*	*	*	*	*	*	*	10	16
	BLOCK: pillow, brake mounting AJH3001X1/2 (87946)		EA	2	*	*	*	*	*	*	*	*	10	17
07-9566	WASHER, LOCK: pillow block mounting MS35338-45 (96906)		EA	2	*	*	*	*	*	*	*	*	10	18
80-7744	NUT, PLAIN, HEXAGON: pillow block mounting MS51967-5 (96906)		EA	2	*	*	*	*	*	*	*	*	10	19
732-0558	NUT, PLAIN HEXAGON: cylinder mounting MS51967-8 (96906)		EA	4	*	*	*	*	*	*	*	*	10	20
275-3683	WASHER, LOCK: cylinder mounting MS35335-40 (96906)		EA	4	*	*	*	*	*	*	*	*	10	21

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P O	5305-269-3221	SCREW, CAP, HEXAGON HEAD: cylinder mounting MS90725-71 (96906)	EA	4	*	*	*	*	*	*	*	*	10	22
P O	4730-102-9714	TEE: tube, brake line 4710934 (30612)	EA	1	*	*	*	*	*	*	*	*	10	23
P O		TUBE ASSEMBLY: w/fitting, tee to left wheel 4784167 (30612)	EA	1	*	*	*	*	*	*	*	*	10	24
P O		GASKET: fitting FC602 (63477)	EA	2	*	*	*	*	*	*	*	*	10	25
P O	2530-521-5672	CONNECTOR, MULTILINE: brake tube FC3163 (63477)	EA	2	*	*	*	*	*	*	*	*	10	26
P O		GASKET: bolt FC603 (63477)	EA	2	*	*	*	*	*	*	*	*	10	27
P O		BOLT, FLUID PASSAGE: connector FC673 (63477)	EA	2	*	*	*	*	*	*	*	*	10	28
P O		TUBE ASSEMBLY: w/fitting, tee to right wheel 4784177 (30612)	EA	1	*	*	*	*	*	*	*	*	10	29
P O		TUBE ASSEMBLY: master cylinder to tee 4810557 (30612)	EA	1	*	*	*	*	*	*	*	*	10	30
P O	5930-636-2443	SWITCH: pressure, stop light FC7715 (63477)	EA	1	*	*	*	*	*	*	*	*	10	31
P O	5940-843-1522	TERMINAL: wire, switch 277 (16764)	EA	2	*	*	*	*	*	*	*	*	10	32
P O		RETAINER: push rod 4807278 (30612)	EA	1	*	*	*	*	*	*	*	*	10	33
P O		SPRING: push rod 4806916 (30612)	EA	1	*	*	*	*	*	*	*	*	10	34
P O		RETAINER: push rod 4807279 (30612)	EA	1	*	*	*	*	*	*	*	*	10	35
		GROUP 11 - SERVICE BRAKE ASSEMBLY												
P O		PLATE, WEAR: service brakes 4808402 (30612)	EA	4	*	*	*	*	*	*	*	*	11	1
P O	5310-988-5910	WASHER, LOCK: wear plate mounting 1114-05 (78189)	EA	8	*	*	*	*	*	*	*	*	11	2
P O		SCREW: 12 point, 1/4-20 x 5/8, wear plate mounting 922062 (30612)	EA	8	*	*	*	*	*	*	*	*	11	3
P O	2530-419-8813	BRAKE SHOE, W/LINING: brake assembly 4807349 (30612)	EA	4	*	*	*	*	*	*	*	*	11	4
P O	2530-411-3834	ADJUSTER: brake shoe 4769887 (30612)	EA	1	*	*	*	*	*	*	*	*	11	5
P O		LINK, CONNECTING: wheel cylinder FC2305 (63477)	EA	4	*	*	*	*	*	*	*	*	11	6
P OR		WHEEL CYLINDER ASSEMBLY: brake 4717072 (30612)	EA	2	*	*	*	*	*	*	*	*	11	7
X1		BOOT, DUST AND MOISTURE SEAL: wheel cylinder FC4637 (63477) (Component of PARTS KIT - 2530-075-0152)	EA	4									11	8
P F	2530-180-6867	PISTON: wheel cylinder FC723 (63477)	EA	4	*	*	*	*	*	*	*	*	11	9
X1		CUP, PISTON: wheel cylinder FC725 (63477) (Component of PARTS KIT - 2530-075-0152)	EA	4									11	10

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0-737-3260	SCREW, BLEEDER: wheel cylinder FC11596 (63477)	EA	2	*	*	*	*	*	*	*	*	11	11
0-388-4830	BODY: wheel cylinder FD470 (63477)	EA	2	*	*	*	*	*	*	*	*	11	12
0-663-3879	SPRING, HELICAL COMPRESSION: wheel cylinder FC724 (63477)	EA	2	*	*	*	*	*	*	*	*	11	13
5-269-3210	SCREW, CAP, HEXAGON HEAD: wheel cylinder mounting MS90725-59 (96906)	EA	2	*	*	*	*	*	*	*	*	11	14
0-637-9541	WASHER, LOCK: cylinder mounting MS35338-46 (96906)	EA	2	*	*	*	*	*	*	*	*	11	15
5-844-3965	PIN, SPRING: brake adjuster MS16562-48 (96906)	EA	4	*	*	*	*	*	*	*	*	11	16
5-983-5346	SCREW, CAP, SOCKET HEAD: spring bracket mounting MS16997-78 (96906)	EA	2	*	*	*	*	*	*	*	*	11	17
0-407-9566	WASHER, LOCK: spring bracket mounting MS35338-45 (96906)	EA	2	*	*	*	*	*	*	*	*	11	18
30-015-7080	SPRING, HELICAL EXTENSION: brake shoe, lower 4769885 (30612)	EA	4	*	*	*	*	*	*	*	*	11	19
60-440-4933	SPRING, HELICAL EXTENSION: brake shoe, upper 4707255 (30612)	EA	2	*	*	*	*	*	*	*	*	11	20
	BRACKET: spring, brake shoes 4769886 (30612)	EA	2	*	*	*	*	*	*	*	*	11	21
	GROUP 12 - BRAKE MASTER CYLINDER ASSEMBLY												
30-864-3893	MASTER CYLINDER ASSEMBLY: hydraulic brake FE44492-0 (63477)	EA	1	*	*	*	*	*	*	*	*	12	-
30-737-5440	BOLT, FLUID PASSAGE: cylinder FC3474 (63477)	EA	1	*	*	*	*	*	*	*	*	12	1
30-834-5143	GASKET: bolt FC603 (63477)	EA	1	*	*	*	*	*	*	*	*	12	2
30-521-5672	FITTING: cylinder outlet 4794978 (30612)	EA	1	*	*	*	*	*	*	*	*	12	3
10-275-6635	GASKET: connector FC602 (63477)	EA	1	*	*	*	*	*	*	*	*	12	4
30-343-8161	CAP, FILLER: cylinder FC12103 (63477)	EA	1	*	*	*	*	*	*	*	*	12	5
30-291-6658	GASKET: cap FC6019 (63477)	EA	1	*	*	*	*	*	*	*	*	12	6
	BODY: cylinder 4984140 (30612)	EA	1									12	7
	VALVE ASSEMBLY: w/seal FD11422 (63477) (Component of PARTS KIT - 2530-359-0347)	EA	1									12	8
	SPRING: w/retainer FC1147C (63477)	EA	1	*	*	*	*	*	*	*	*	12	9
	CUP, PISTON: master cylinder F2108 (63477) (Component of PARTS KIT - 2530-359-0347)	EA	1									12	10
	PISTON ASSEMBLY: cylinder FC11143 (63477) (Component of PARTS KIT - 2530-359-0347)	EA	1									12	11

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X1		PLATE, STOP: piston FC14297B (63477) (Component of PARTS KIT - 2530-359-0347)	EA	1									12	12
X1		WIRE, LOCK: boot FC2927E (63477) (Component of PARTS KIT - 2530-359-0347)	EA	1									12	13
X1		BOOT, DUST AND MOISTURE SEAL: rod FC10901C (63477) (Component of PARTS KIT - 2530-359-0347)	EA	1									12	14
P F		ROD: piston FC11065C (63477)	EA	1	*	*	*	*	*	*	*	*	12	15
		GROUP 13 - DRIVE WHEEL ASSEMBLY												
P O		DRIVE WHEEL ASSEMBLY: truck 4781578 (30612)	EA	2	*	*	*	*	*	*	*	*	13	-
P F	2630-811-5602	TIRE, SOLID CUSHION: drive wheel assembly MS35393 (96906)	EA	2	*	*	*	*	*	*	*	*	13	1
P F		GEAR, RING: drive wheel 4749689 (30612)	EA	2	*	*	*	*	*	*	*	*	13	2
P O	3110-586-8306	CUP, TAPERED ROLLER BEARING: inner 4254318 (30612)	EA	2	*	*	*	*	*	*	*	*	13	3
P F		WHEEL, DRIVE 4752618 (30612)	EA	2	*	*	*	*	*	*	*	*	13	4
P F	5310-637-9541	WASHER, LOCK: bull gear MS35338-46 (96906)	EA	6	*	*	*	*	*	*	*	*	13	5
P F	5305-269-3216	SCREW, CAP, HEXAGON HEAD: bull gear MS90725-66 (96906)	EA	6	*	*	*	*	*	*	*	*	13	6
P O	3110-678-1812	CUP, TAPERED ROLLER BEARING: outer 4254699 (30612)	EA	2	*	*	*	*	*	*	*	*	13	7
P O	5305-269-3209	SCREW, CAP, HEXAGON HEAD: hub cap MS90725-58 (96906)	EA	6	*	*	*	*	*	*	*	*	13	8
P O	5310-595-7237	WASHER, LOCK: 3/8, hub cap MS35333-42 (96906)	EA	6	*	*	*	*	*	*	*	*	13	9
P O	2530-382-8103	CAP, HUB: drive wheel assembly 4706891 (09367)	EA	2	*	*	*	*	*	*	*	*	13	10
P O	3110-727-6901	BEARING, ROLLER, TAPERED: inner, drive wheel 4254700 (30612)	EA	2	*	*	*	*	*	*	*	*	13	11
P O	3110-586-8305	BEARING, ROLLER, TAPERED: outer, drive wheel 4254317 (30612)	EA	2	*	*	*	*	*	*	*	*	13	12
P O		PIN, SPRING: bull gear MS39086-401 (96906)	EA	6	*	*	*	*	*	*	*	*	13	13

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	GROUP 14 - REAR WHEEL ASSEMBLY												
	REAR WHEEL ASSEMBLY: truck 4788524 (30612)	EA	1	*	*	*	*	*	*	*	*	14	-
30-294-9001	TIRE, SOLID CUSHION: steering wheel MS35393-62 (96906) 4.80-9 13X4.5X8	EA	2	*	*	*	*	*	*	*	*	14	1
10-586-8306	CUP, TAPERED ROLLER BEARING: inner 4254318 (30612)	EA	1	*	*	*	*	*	*	*	*	14	2
	WHEEL: rear 4778818 (30612)	EA	2	*	*	*	*	*	*	*	*	14	3
10-606-1640	CUP, TAPERED ROLLER BEARING: outer 4254704 (30612)	EA	2	*	*	*	*	*	*	*	*	14	4
05-068-0500	SCREW, CAP, HEXAGON HEAD: hub cap mounting MS90725-3 (96906)	EA	6	*	*	*	*	*	*	*	*	14	5
10-582-5965	WASHER, LOCK: hub cap mounting MS35338-44 (96906)	EA	6	*	*	*	*	*	*	*	*	14	6
30-043-5451	CAP, HUB: steering wheels 4747622 (30612)	EA	2	*	*	*	*	*	*	*	*	14	7
15-298-1499	PIN, COTTER: spindle shaft MS24665-360 (96906)	EA	2	*	*	*	*	*	*	*	*	14	8
30-043-5355	NUT, SLOTTED HEXAGON: bearing adjusting 4718022 (30612)	EA	2	*	*	*	*	*	*	*	*	14	9
10-809-8541	WASHER, FLAT: bearing retaining MS27183-27 (96906)	EA	2	*	*	*	*	*	*	*	*	14	10
10-606-1840	CUP, TAPERED ROLLER BEARING: outer, steering wheel LM67010 (60038)	EA	2	*	*	*	*	*	*	*	*	14	11
10-686-1117	CONE, TAPERED ROLLER BEARING: inner, steering wheel LM48548L (60038)	EA	2	*	*	*	*	*	*	*	*	14	12
	GROUP 15 - DRAG LINK ASSEMBLY												
	LINK ASSEMBLY: drag, steering D22993 (72210)	EA	1	*	*	*	*	*	*	*	*	15	-
	END ASSEMBLY: socket, drag link D22962 (72210)	EA	1	*	*	*	*	*	*	*	*	15	1
30-580-7070	PLUG: adjusting, socket end S1233 (72210)	EA	1	*	*	*	*	*	*	*	*	15	2
30-230-9792	SEAT: ball, socket end S5340 (72210)	EA	1	*	*	*	*	*	*	*	*	15	3
30-546-2433	SPRING, HELICAL COMPRESSION: ball seat S5896 (72210)	EA	1	*	*	*	*	*	*	*	*	15	4
	NUT, PLAIN HEXAGON: socket end D22993-6 (72210)	EA	1	*	*	*	*	*	*	*	*	15	5
	LINK: drag, steering D22995 (72210)	EA	1									15	6
10-584-7931	WASHER, FLAT: spring backing S5339 (72210)	EA	1	*	*	*	*	*	*	*	*	15	7
30-546-2433	SPRING, HELICAL COMPRESSION: ball seat S5896 (72210)	EA	1	*	*	*	*	*	*	*	*	15	8
30-230-9792	SEAT: ball, socket end S5340 (72210)	EA	1	*	*	*	*	*	*	*	*	15	9
30-780-7070	PLUG: adjusting, socket end S1233 (72210)	EA	1	*	*	*	*	*	*	*	*	15	10
15-298-1481	PIN, COTTER: adjusting plug MS24665-357 (96906)	EA	2	*	*	*	*	*	*	*	*	15	11

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P O	4730-250-7903	FITTING, LUBRICATION: 1/4-28, 45 deg., socket end 1636B (95879)		EA	2	*	*	*	*	*	*	*	*	15	12
P F		SCREW, CAP, HEXAGON HEAD: 1/4-28 x 1/2, plug 917214 (30612)		EA	1	*	*	*	*	*	*	*	*	15	13
		GROUP 16 - STEERING GEAR ASSEMBLY													
P2 FR	2530-432-7185	GEAR ASSEMBLY: steering 253AA008 (73740)		EA	1	*	*	*	*	*	*	*	*	16	-
P O	5306-225-9095	BOLT, MACHINE: clamp mounting MS90726-40 (96906)		EA	1	*	*	*	*	*	*	*	*	16	1
P O	5340-622-0866	CLAMP: jacket tube 475104 (73740)		EA	1	*	*	*	*	*	*	*	*	16	2
P O	5310-167-0721	WASHER, LOCK: internal, clamp 35335-41 (96906)		EA	1	*	*	*	*	*	*	*	*	16	3
P O	5310-880-7746	NUT, PLAIN HEXAGON: clamp MS51968-5 (96906)		EA	1	*	*	*	*	*	*	*	*	16	4
P F		TUBE ASSEMBLY: jacket 09523941 (73740)		EA	1	*	*	*	*	*	*	*	*	16	5
P F		CAP: housing 24DC24 (73740)		EA	1	*	*	*	*	*	*	*	*	16	6
P F		SHIM: 0.005, worm cover 24DC03 (73740)		EA	2	*	*	*	*	*	*	*	*	16	7
P F		SHIM: 0.002, worm cover 24DC04 (73740)		EA	1	*	*	*	*	*	*	*	*	16	7
P F		SHIM: 0.010, worm cover 24DC05 (73740)		EA	5	*	*	*	*	*	*	*	*	16	7
P F		CUP, BALL BEARING: worm shaft 400078 (73740)		EA	1	*	*	*	*	*	*	*	*	16	8
P F		RETAINER AND BALL ASSEMBLY: worm bearing 499981A (73740)		EA	2	*	*	*	*	*	*	*	*	16	9
P F		SHAFT, W/WORM: steering gear assembly 24DF17 (73740)		EA	1	*	*	*	*	*	*	*	*	16	10
P F	3110-516-5489	CUP, BALL BEARING: worm shaft 400056 (73740)		EA	1	*	*	*	*	*	*	*	*	16	11
P O	4730-221-2138	PLUG, PIPE: square head, filler MS20913-3S (96906)		EA	1	*	*	*	*	*	*	*	*	16	12
P F		HOUSING: steering gear 253CM000 (73740)		EA	1	*	*	*	*	*	*	*	*	16	13
P F		BEARING, SLEEVE: roller shaft 253CM003 (73740)		EA	1	*	*	*	*	*	*	*	*	16	14
P F		SEAL, PLAIN: roller shaft 3562 (73740)		EA	1	*	*	*	*	*	*	*	*	16	15
P F	5310-754-2005	WASHER, LOCK: roller shaft MS35338-52 (96906)		EA	1	*	*	*	*	*	*	*	*	16	16
P F	5310-971-7990	NUT, PLAIN HEXAGON: roller shaft MS35691-69 (96906)		EA	1	*	*	*	*	*	*	*	*	16	17
P F		TUBE ASSEMBLY: lubrication 402294A1-800 (73740)		EA	1	*	*	*	*	*	*	*	*	16	18
P F		SHAFT ASSEMBLY: roller 253MA003 (73740)		EA	1	*	*	*	*	*	*	*	*	16	19

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2530-044-2240	SCREW: adjusting 3020 (73740)		EA	1	*	*	*	*	*	*	*	*	16	20
5310-880-6004	WASHER, THRUST: 4DF03 (73740)		EA	1	*	*	*	*	*	*	*	*	16	21
5365-238-7382	RING, RETAINING: shaft N5000-87 (73740)		EA	1	*	*	*	*	*	*	*	*	16	22
	GASKET: housing cover 24DF04 (73740)		EA	1	*	*	*	*	*	*	*	*	16	23
	COVER: gear housing 24DF03 (73740)		EA	1	*	*	*	*	*	*	*	*	16	24
5310-943-2141	NUT, PLAIN HEXAGON: adjusting screw MS51968-15 (96906)		EA	1	*	*	*	*	*	*	*	*	16	25
5305-237-8029	SCREW, CAP, HEXAGON HEAD: housing cover 1202 (73740)		EA	8	*	*	*	*	*	*	*	*	16	26
3110-040-1916	BEARING, BALL: worm shaft 31208 (73740)		EA	1	*	*	*	*	*	*	*	*	16	27
2530-737-4802	SPACER: bearing 33741 (73740)		EA	1	*	*	*	*	*	*	*	*	16	28
2530-597-0766	SPRING, HELICAL COMPRESSION: worm shaft 33221 (73740)		EA	1	*	*	*	*	*	*	*	*	16	29
5310-410-3109	NUT, PLAIN HEXAGON: worm shaft 33050 (73740)		EA	1	*	*	*	*	*	*	*	*	16	30
5305-959-2722	SCREW, CAP, HEXAGON HEAD: steering gear mounting MS35190-308 (96906)		EA	3	*	*	*	*	*	*	*	*	16	31
5310-584-5272	WASHER, LOCK: steering gear mounting MS35338-48 (96906)		EA	3	*	*	*	*	*	*	*	*	16	32
5310-768-0318	NUT, PLAIN HEXAGON: steering gear mounting MS51967-14 (96906)		EA	3	*	*	*	*	*	*	*	*	16	33
5310-834-8734	NUT, PLAIN HEXAGON: pitman arm stop adjustment MS35691-33 (96906)		EA	2	*	*	*	*	*	*	*	*	16	34
5305-725-4187	SCREW, CAP, HEXAGON HEAD: pitman arm adjustment stop MS90726-114 (96906)		EA	2	*	*	*	*	*	*	*	*	16	35
	ARM ASSEMBLY: pitman 4827538 (30612)		EA	2	*	*	*	*	*	*	*	*	16	36
	GROUP 17 - STEERING WHEEL AND HORN ASSEMBLY													
2590-612-2181	COVER: horn assembly 45006 (73740)		EA	1	*	*	*	*	*	*	*	*	17	1
2590-374-0826	CONTACT: electrical 029031 (73740)		EA	1	*	*	*	*	*	*	*	*	17	2
2590-215-4048	CONTACT: electrical 029037 (73740)		EA	1	*	*	*	*	*	*	*	*	17	3
2590-253-7229	SPRING, HELICAL COMPRESSION: horn 401081 (73740)		EA	1	*	*	*	*	*	*	*	*	17	4
2590-371-3137	BUTTON: horn contact 450029 (73740)		EA	1	*	*	*	*	*	*	*	*	17	5
	WIRE ASSEMBLY: horn contact 4822213 (30612)		EA	1	*	*	*	*	*	*	*	*	17	6
5305-014-9921	SCREW, WOOD: plate mounting 149921 (24617)		EA	3	*	*	*	*	*	*	*	*	17	7

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P O	2590-737-3216	PLATE: base, horn contact assembly 434885 (73740)		EA	1	*	*	*	*	*	*	*	*	17	8
P O	2530-097-3004	WHEEL: steering 601 (77915)		EA	1	*	*	*	*	*	*	*	*	17	9
		GROUP 18 - FRAME AND COMPONENTS													
X1		FRAME ASSEMBLY: truck 4827488 (30612)		EA	1									18	1
P O	5310-761-6882	NUT, PLAIN HEXAGON: control board cover mounting MS51967-2 (96906)		EA	22	*	*	*	*	*	*	*	*	18	2
P O	5310-582-5965	WASHER, LOCK: control board cover mounting MS35338-44 (96906)		EA	14	*	*	*	*	*	*	*	*	18	3
X2 O		COVER: control board 4825860 (30612)		EA	1									18	4
P O		SCREW, MACHINE: control board cover mounting MS35190-289 (96906)		EA	2	*	*	*	*	*	*	*	*	18	5
P O	5305-068-0502	SCREW, CAP, HEXAGON HEAD: control board cover mounting MS90725-6 (96906)		EA	2	*	*	*	*	*	*	*	*	18	6
P O	5310-274-8879	NUT: retainer, toe plate mounting AN363-518 (88044)		EA	2	*	*	*	*	*	*	*	*	18	7
P O	5310-809-3078	WASHER, FLAT: bracket mounting MS27183-11 (96906)		EA	2	*	*	*	*	*	*	*	*	18	8
X2 O		PLATE: toe 4825962 (30612)		EA	1									18	9
P O	5305-984-5674	SCREW, MACHINE: toe plate mounting MS35206-294 (96906)		EA	4	*	*	*	*	*	*	*	*	18	10
P O	2540-358-4372	BRACKET: accelerator pedal 4735718 (30612)		EA	1	*	*	*	*	*	*	*	*	18	11
P O	2540-101-4698	PEDAL: accelerator 3316S (92850)		EA	1	*	*	*	*	*	*	*	*	18	12
P O	5315-151-8733	PIN, STRAIGHT, HEADLESS: pedal mounting 4774640 (30612)		EA	1	*	*	*	*	*	*	*	*	18	13
P O	5365-598-6355	RING, RETAINER: pedal pin MS16633-31 (96906)		EA	2	*	*	*	*	*	*	*	*	18	14
P O		COVER: valve 4809742 (30612)		EA	1	*	*	*	*	*	*	*	*	18	15
P O		TRIM: edge, valve cover 4801535 (30612)		EA	2	*	*	*	*	*	*	*	*	18	16
P O	5310-514-6674	WASHER, LOCK: valve cover mounting MS35335-34 (96906)		EA	1	*	*	*	*	*	*	*	*	18	17
P O		SCREW, MACHINE: valve cover mounting 921379 (30612)		EA	1	*	*	*	*	*	*	*	*	18	18
X2 O		COVER: contactor box 4821745 (30612)		EA	1									18	19
P O		GASKET: contactor box cover 4811767 (30612)		EA	1	*	*	*	*	*	*	*	*	18	20
P O		NUT: retainer, cover mounting C30035-1420 (78553)		EA	3	*	*	*	*	*	*	*	*	18	21
P O	5310-209-0786	WASHER, LOCK: cover mounting MS35335-33 (96906)		EA	12	*	*	*	*	*	*	*	*	18	22
P O	5305-071-1315	SCREW, MACHINE: cover mounting MS51957-79 (96906)		EA	15	*	*	*	*	*	*	*	*	18	23

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	TRIM: edge, toe plate 4799957 (30612)		EA	1	*	*	*	*	*	*	*	*	18	24
	PLATE: right side 4827548 (30612)		EA	1									18	25
	PLATE: floor 4829378 (30612)		EA	1									18	26
5305-984-5674	SCREW, MACHINE: floor plate MS35206-294 (96906)		EA	2	*	*	*	*	*	*	*	*	18	27
	COVER: diode 4825861 (30612)		EA	1	*	*	*	*	*	*	*	*	18	28
	RETAINER: acid tray 4823457 (30612)		EA	1									18	29
5305-044-4153	SCREW, CAP, HEXAGON HEAD: retainer mounting MS90725-110 (96906)		EA	2	*	*	*	*	*	*	*	*	18	30
5310-584-5272	WASHER, LOCK: retainer mounting MS35338-48 (96906)		EA	2	*	*	*	*	*	*	*	*	18	31
	COVER: battery compartment 4827555 (30612)		EA	1	*	*	*	*	*	*	*	*	18	32
	HANDLE: battery compartment cover 4734284 (30612)		EA	1	*	*	*	*	*	*	*	*	18	33
5305-990-6444	SCREW, MACHINE: handle mounting MS35207-261 (96906)		EA	2	*	*	*	*	*	*	*	*	18	34
5310-045-3296	WASHER, LOCK: handle mounting MS35338-43 (96906)		EA	2	*	*	*	*	*	*	*	*	18	35
5305-958-5270	SCREW, MACHINE: counterweight to back plate MS35190-350 (96906)		EA	4	*	*	*	*	*	*	*	*	18	36
	WASHER, LOCK: counterweight mounting MS35335-37 (96906)		EA	4	*	*	*	*	*	*	*	*	18	37
	PLATE: rear, battery compartment 4827551 (30612)		EA	1									18	38
	SPACER: counterweight mounting 923394 (30612)		EA	4	*	*	*	*	*	*	*	*	18	39
	WASHER, FLAT: counterweight mounting MS27183-19 (96906)		EA	4	*	*	*	*	*	*	*	*	18	40
	COUNTERWEIGHT: fork lift 4830581 (30612)		EA	1									18	41
5305-042-9479	SCREW, CAP, HEXAGON HEAD: counterweight mounting MS90725-192 (96906)		EA	4	*	*	*	*	*	*	*	*	18	42
5315-785-1807	PIN, SHOULDER: counterweight S279 (19691)		EA	1	*	*	*	*	*	*	*	*	18	43
5310-951-7209	WASHER, FLAT: counterweight mounting MS27183-22 (96906)		EA	6	*	*	*	*	*	*	*	*	18	44
5310-584-7888	WASHER, LOCK: counterweight MS35338-51 (96906)		EA	4	*	*	*	*	*	*	*	*	18	45
5310-763-8921	NUT, PLAIN HEXAGON: counterweight mounting MS51967-23 (96906)		EA	4	*	*	*	*	*	*	*	*	18	46
5303-054-6654	SCREW, MACHINE: battery cover insulation mounting MS51957-30 (96906)		EA	12	*	*	*	*	*	*	*	*	18	47
	INSULATION: battery compartment cover 4811395 (30612)		EA	1	*	*	*	*	*	*	*	*	18	48
5310-045-4007	WASHER, LOCK: battery compartment cover insulation mounting MS35338-41 (96906)		EA	12	*	*	*	*	*	*	*	*	18	49

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P O	5310-934-9747	NUT, PLAIN HEXAGON: battery cover insulation mounting MS35649-262 (96906)		EA	12	*	*	*	*	*	*	*	*	18	50
P O		INSULATION: rubber 4802743 (30612)		EA	1	*	*	*	*	*	*	*	*	18	51
P O		INSULATION: battery compartment cover 4811394 (30612)		EA	1	*	*	*	*	*	*	*	*	18	52
X2 O		PLATE: left side 4824521 (30612)		EA	1									18	53
P O	5305-959-2723	SCREW, MACHINE: acid tray mounting MS35190-319 (96906)		EA	4	*	*	*	*	*	*	*	*	18	54
X2 O		TRAY: acid 4827552 (30612)		EA	1									18	55
P O	5310-209-1962	WASHER, FLAT: acid tray mounting MS27183-13 (96906)		EA	4	*	*	*	*	*	*	*	*	18	56
P O	5310-261-7340	WASHER, LOCK: acid tray mounting MS35338-46 (96906)		EA	4	*	*	*	*	*	*	*	*	18	57
P O	5310-880-7744	NUT, PLAIN HEXAGON: acid tray mounting MS51967-8 (96906)		EA	4	*	*	*	*	*	*	*	*	18	58
P O	5310-958-5270	SCREW, MACHINE: drip pan mounting MS35190-350 (96906)		EA	2	*	*	*	*	*	*	*	*	18	59
P O		NUT, SHEET, SPRING: drip pan mounting C8738-1420-1 (78553)		EA	2	*	*	*	*	*	*	*	*	18	60
P O		PAN: drip 4828493 (30612)		EA	1	*	*	*	*	*	*	*	*	18	61
P O	5310-823-8804	WASHER, FLAT: pan mounting 916955 (30612)		EA	2	*	*	*	*	*	*	*	*	18	62
P O	5310-582-5965	WASHER, LOCK: pan mounting MS35338-44 (96906)		EA	2	*	*	*	*	*	*	*	*	18	63
P O	5310-761-6882	NUT, PLAIN HEXAGON: pan mounting MS51967-2 (96906)		EA	2	*	*	*	*	*	*	*	*	18	64
P F		SCREW, MACHINE: 1/4-20 x 3/4, power switch cover 923698 (30612)		EA	6	*	*	*	*	*	*	*	*	18	65
X2 F		COVER: power switch compartment 4827814 (30612)		EA	1									18	66
P F		GASKET: power switch cover 4811759 (30612)		EA	1	*	*	*	*	*	*	*	*	18	67
P F	5315-842-3044	PIN, COTTER: clevis pin MS24665-283 (96906)		EA	2	*	*	*	*	*	*	*	*	18	68
P F	5310-087-7493	WASHER, FLAT: clevis pin MS27183-14 (96906)		EA	2	*	*	*	*	*	*	*	*	18	69
P F		PIN, CLEVIS: cover mounting MS35810-34 (96906)		EA	1	*	*	*	*	*	*	*	*	18	70
P F		SCREW, MACHINE: 1/4-20 x 1, top floor mounting 920495 (30612)		EA	6	*	*	*	*	*	*	*	*	18	71
P F		STRAP: filter mounting 4811780 (30612)		EA	2	*	*	*	*	*	*	*	*	18	72
P F	5305-068-0502	SCREW, CAP, HEXAGON HEAD MS90725-6 (96906)		EA	16	*	*	*	*	*	*	*	*	18	73
P F		FILTER: bottom, power switch compartment 4811783 (30612)		EA	1	*	*	*	*	*	*	*	*	18	74

(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REF NUMBER & MFR CODE / USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1-YR ALW PER 100 EQUIP CNTGY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATION (a) FIG. NO.	(b) ITEM NO.
	GASKET: filter baffle 4811776 (30612)	EA	2	*	*	*	*	*	*	*	*	18	75
	GASKET: filter baffle 4811773 (30612)	EA	2	*	*	*	*	*	*	*	*	18	76
	BAFFLE: filter mounting 4811785 (30612)	EA	1	*	*	*	*	*	*	*	*	18	77
	WASHER, FLAT: baffle and filter mounting 916955 (30612)	EA	4	*	*	*	*	*	*	*	*	18	78
5310-582-5965	WASHER, LOCK: baffle and filter mounting MS35338-44 (96906)	EA	20	*	*	*	*	*	*	*	*	18	79
5310-761-6882	NUT, PLAIN, HEXAGON: baffle and filter mounting MS51967-2 (96906)	EA	24	*	*	*	*	*	*	*	*	18	80
5305-225-3839	SCREW, CAP, HEXAGON HEAD: side filter mounting MS90725-8 (96906)	EA	8	*	*	*	*	*	*	*	*	18	81
	FILTER: side, power switch compartment 4811778 (30612)	EA	2	*	*	*	*	*	*	*	*	18	82
	WASHER, FLAT: 1/4, filter mounting 916955 (30612)	EA	8	*	*	*	*	*	*	*	*	18	83
	FILTER: top, power switch compartment 4795086 (30612)	EA	1	*	*	*	*	*	*	*	*	18	84
	COVER: top filter 4811788 (30612)	EA	1	*	*	*	*	*	*	*	*	18	85
	GROUP 19 - OVERHEAD GUARD ASSEMBLY												
	GUARD ASSEMBLY: overhead 4827584 (306 2)	EA	1									19	1
5305-947-0176	SCREW, CAP, HEXAGON HEAD: rear mounting MS90725-182 (96906)	EA	2	*	*	*	*	*	*	*	*	19	2
5310-584-7888	WASHER, LOCK: rear mounting MS35338-51 (96906)	EA	2	*	*	*	*	*	*	*	*	19	3
5305-042-6417	SCREW, CAP, HEXAGON HEAD: front mounting MS90725-113 (96906)	EA	4	*	*	*	*	*	*	*	*	19	4
5310-584-5272	WASHER, LOCK: front mounting MS35338-48 (96906)	EA	4	*	*	*	*	*	*	*	*	19	5
5310-768-0318	NUT, PLAIN HEXAGON: front mounting MS51967-14 (96906)	EA	4	*	*	*	*	*	*	*	*	19	6
	GROUP 20 - SEAT ASSEMBLY												
	SEAT ASSEMBLY: truck 15173 (09704) 4803936-8	EA	1	*	*	*	*	*	*	*	*	20	-
	CUSHION: seat 15173C (09704)	EA	1	*	*	*	*	*	*	*	*	20	1
	CUSHION: backrest 15173B (09704)	EA	1	*	*	*	*	*	*	*	*	20	2
	FRAME: seat 15173F (09704)	EA	1	*	*	*	*	*	*	*	*	20	3
5305-958-5248	SCREW, MACHINE: hinge pivot MS35190-293 (96906)	EA	2	*	*	*	*	*	*	*	*	20	4
5310-809-4058	WASHER, FLAT: hinge pivot MS27183-10 (96906)	EA	2	*	*	*	*	*	*	*	*	20	5
	NUT, SELF-LOCKING, HEXAGON: 1/4-20, hinge pivot 29NU0110 (22599)	EA	2	*	*	*	*	*	*	*	*	20	6

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P O	5310-880-7746	NUT, PLAIN, HEXAGON: frame to slide MS51968-5 (96906)	EA	4	*	*	*	*	*	*	*	*	20	7
P O	5310-407-9566	WASHER, LOCK: 5/16, frame to slide MS35338-45 (96906)	EA	4	*	*	*	*	*	*	*	*	20	8
P O	5306-225-9088	SCREW, CAP, HEXAGON HEAD: frame to slide MS90726-33 (96906)	EA	4	*	*	*	*	*	*	*	*	20	9
P O		SLIDE, LEFT HAND: seat adjusting 6732-15 (09704)	EA	1	*	*	*	*	*	*	*	*	20	10
P O	5360-404-8333	SPRING, HELICAL COMPRESSION: seat latch 4194 (09704)	EA	1	*	*	*	*	*	*	*	*	20	11
P O		KNOB, ADJUSTING: seat position lever 80-5 (09704)	EA	1	*	*	*	*	*	*	*	*	20	12
P O		SLIDE, RIGHT HAND: seat position 5404AC (09704)	EA	1	*	*	*	*	*	*	*	*	20	13
P O		BUMPER: rubber, slide mounting 4788327 (30612)	EA	4	*	*	*	*	*	*	*	*	20	14
		GROUP 21 - HYDRAULIC PUMP ASSEMBLY												
P2 FR	3930-451-4557	PUMP ASSEMBLY: hydraulic 24386LAA (71379) 4813902	EA	1	*	*	*	*	*	*	*	*	21	-
P F		KEY, MACHINE: drive shaft, pump 15505-4 (71379)	EA	1	*	*	*	*	*	*	*	*	21	1
P F		GEAR ASSEMBLY: pump idler 24386-302 (71379)	EA	1	*	*	*	*	*	*	*	*	21	2
P F		GEAR ASSEMBLY: pump drive 24386-306 (71379)	EA	1	*	*	*	*	*	*	*	*	21	3
X1		DIAPHRAGM: pump 15511-10 (71379) (Component of REPAIR KIT - 24380-909 and PACKING KIT - 3930-075-0159)	EA	1									21	4
X1		GASKET: backup, diaphragm 1511-11 (71379) (Component of REPAIR KIT - 24380-909 and PACKING KIT - 3930-075-0159)	EA	2									21	5
X1		GASKET: protector, diaphragm 1511-28 (71379) (Component of REPAIR KIT - 24380-909 and PACKING KIT - 3930-075-0159)	EA	2									21	6
X1		SEAL: diaphragm 15511-9 (71379) (Component of REPAIR KIT - 24380-909 and PACKING KIT - 3930-075-0159)	EA	1									21	7
X1		SPRING: plate assembly 15147-112 (71379) (Component of REPAIR KIT - 24380-909 and PACKING KIT - 3930-075-0159)	EA	2									21	8
X1		BALL: steel, plate assembly 16006-7 (71379) (Component of REPAIR KIT - 24380-909 and PACKING KIT - 3930-075-0159)	EA	2									21	9
P F		PLATE ASSEMBLY: front 1511-3 (71379)	EA	1	*	*	*	*	*	*	*	*	21	10
X1		SEAL: drive shaft 1511-85A (71379) (Component of REPAIR KIT - 24380-909 and PACKING KIT - 3930-075-0159)	EA	1									21	11
P F		PIN, STRAIGHT, HEADLESS: dowel 15511-16 (71379)	EA	2	*	*	*	*	*	*	*	*	21	12

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	BODY: hydraulic pump 24309-250 (71379)		EA	1	*	*	*	*	*	*	*	*	21	13
	ADAPTER: body assembly 24380-856 (71379)		EA	1	*	*	*	*	*	*	*	*	21	14
05-269-3211	SCREW, CAP, HEXAGON HEAD: adaptor mounting MS90725-60 (96906)		EA	2	*	*	*	*	*	*	*	*	21	15
10-261-7340	WASHER, LOCK: adaptor mounting MS35338-46 (96906)		EA	2	*	*	*	*	*	*	*	*	21	16
	ADAPTOR: port 20220-41 (71379)		EA	1	*	*	*	*	*	*	*	*	21	17
	GASKET: port 20220-41 (71379) (Component of REPAIR KIT - 24380-909)		EA	1									21	18
	SEAL: diaphragm 15600-13 (71379) (Component of REPAIR KIT - 24380-909)		EA	1									21	19
	DIAPHRAGM: pump 20220-13 (71379) (Component of REPAIR KIT - 24380-909 and PACKING KIT - 3930-075-0159)		EA	1									21	20
	GEAR: slip fit 24389-250 (71379)		EA	2	*	*	*	*	*	*	*	*	21	21
	BODY: hydraulic pump 24306-250 (71379)		EA	1	*	*	*	*	*	*	*	*	21	22
	PACKING, PREFORMED: pump body 926216 (30612) (Component of REPAIR KIT - 24380-909)		EA	2									21	23
	PLATE: back 24380-10 (71379)		EA	1	*	*	*	*	*	*	*	*	21	24
	SCREW, CAP, HEXAGON HEAD: backplate 16119-544 (71379)		EA	2	*	*	*	*	*	*	*	*	21	25
6-225-8513	SCREW, CAP, HEXAGON HEAD: backplate MS90725-49 (96906)		EA	4	*	*	*	*	*	*	*	*	21	26
5-225-8514	SCREW, CAP, HEXAGON HEAD: backplate MS90725-50 (96906)		EA	2	*	*	*	*	*	*	*	*	21	27
5-269-2803	SCREW, CAP, HEXAGON HEAD: hydraulic pump to motor MS90726-60 (96906)		EA	2	*	*	*	*	*	*	*	*	21	28
0-261-7340	WASHER, LOCK: pump to motor MS35338-46 (96906)		EA	2	*	*	*	*	*	*	*	*	21	29
0-809-8546	WASHER, FLAT: pump to motor MS27183-8 (96906)		EA	8	*	*	*	*	*	*	*	*	21	30

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		GROUP 22 - CONTROL VALVE AND LINKAGE ASSEMBLY													
P	O	HANDLE: tilt 4819236 (30612)		EA	1	*	*	*	*	*	*	*	*	22	1
P	O	KNOB: red, tilt handle 4795014 (30612)		EA	1	*	*	*	*	*	*	*	*	22	2
P	O	KNOB: black, lift handle 4795013 (30612)		EA	1	*	*	*	*	*	*	*	*	22	3
P	O	HANDLE: lift 4814835 (30612)		EA	1	*	*	*	*	*	*	*	*	22	4
P	O	SHAFT: handle mounting 4795016 (30612)		EA	1	*	*	*	*	*	*	*	*	22	5
P	O	5340-811-6643 RING, RETAINING: shaft 5133-50 (79136)		EA	2	*	*	*	*	*	*	*	*	22	6
P	O	5310-509-5998 WASHER, FLAT: handle spacer MS27183-18 (96906)		EA	2	*	*	*	*	*	*	*	*	22	7
P	O	BOLT, SHOULDER: yoke mounting 4255879 (30612)		EA	2	*	*	*	*	*	*	*	*	22	8
P	O	NUT, SELF-LOCKING: 1/4-20, yoke mounting 22E040 (72962)		EA	2	*	*	*	*	*	*	*	*	22	9
P	O	YOKE: rod end, top 917663 (30612)		EA	2	*	*	*	*	*	*	*	*	22	10
P	O	5310-853-9335 NUT, PLAIN HEXAGON: rod MS35691-13 (96906)		EA	8	*	*	*	*	*	*	*	*	22	11
P	O	ROD: valve control 4802965 (30612)		EA	2	*	*	*	*	*	*	*	*	22	12
P	O	5310-934-9758 NUT, PLAIN HEXAGON: switch bracket mounting MS35649-202 (96906)		EA	2	*	*	*	*	*	*	*	*	22	13
P	O	5310-045-3296 WASHER, LOCK: switch bracket mounting MS35338-43 (96906)		EA	2	*	*	*	*	*	*	*	*	22	14
P	O	5305-701-5078 SCREW, MACHINE: switch bracket mounting MS51959-65 (96906)		EA	2	*	*	*	*	*	*	*	*	22	15
P	O	BRACKET: switch mounting 4828545 (30612)		EA	1	*	*	*	*	*	*	*	*	22	16
P	O	SWITCH: double break 11-504000 (04426) 4828546 71-1044		EA	1	*	*	*	*	*	*	*	*	22	17
P	O	5310-081-4219 WASHER, FLAT: switch actuator MS27183-12 (96906)		EA	4	*	*	*	*	*	*	*	*	22	18
P	O	ACTUATOR: switch, lift rod ~~4828543~~ (30612) 4828533		EA	1	*	*	*	*	*	*	*	*	22	19
P	O	ACTUATOR: switch, tilt rod 4828544 (30612)		EA	1	*	*	*	*	*	*	*	*	22	20
P	O	YOKE: rod end, bottom 4802823 (30612)		EA	2	*	*	*	*	*	*	*	*	22	21
P	O	BOLT, SHOULDER: yoke 4255878 (30612)		EA	2	*	*	*	*	*	*	*	*	22	22
P	O	5310-579-1031 NUT, SELF-LOCKING HEXAGON: rod 21FK1024 (56878)		EA	2	*	*	*	*	*	*	*	*	22	23
P	F	5305-269-3214 SCREW, CAP, HEXAGON HEAD: control valve mounting MS90725-64 (96906)		EA	4	*	*	*	*	*	*	*	*	22	24
P	F	5310-261-7340 WASHER, LOCK: valve mounting MS35338-46 (96906)		EA	4	*	*	*	*	*	*	*	*	22	25

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	NUT, PLAIN HEXAGON: valve mounting MS51967-8 (96906)	EA	4	*	*	*	*	*	*	*	*	22	26
	VALVE ASSEMBLY: hydraulic control 5000-2-31 (93784)	EA	1	*	*	*	*	*	*	*	*	22	27
	GROUP 23 - HYDRAULIC CONTROL VALVE ASSEMBLY												
3349-9089	RELIEF VALVE: inlet section 5060 (93784)	EA	1	*	*	*	*	*	*	*	*	23	-
	NUT, PLAIN CAP: adjusting screw 4131659 (30612)	EA	1	*	*	*	*	*	*	*	*	23	1
	WASHER, FLAT: adjusting screw 4388 (93784)	EA	2	*	*	*	*	*	*	*	*	23	2
	NUT, PLAIN HEXAGON: jam, adjusting screw 3514 (93784)	EA	1	*	*	*	*	*	*	*	*	23	3
	SCREW: valve adjusting 5065 (93784)	EA	1	*	*	*	*	*	*	*	*	23	4
5157-7417	SPRING, HELICAL COMPRESSION: adjusting screw 5063 (93784)	EA	1	*	*	*	*	*	*	*	*	23	5
	POPPET: valve 5061 (93784)	EA	1	*	*	*	*	*	*	*	*	23	6
	PLUG: valve 5084 (93784)	EA	1	*	*	*	*	*	*	*	*	23	7
	PACKING, PREFORMED: plug 921349 (30612) (Component of PARTS KIT-3930-075-0160)	EA	1									23	8
	RING: backup 5067 (93784) (Component of PARTS KIT - 3930-075-0160)	EA	1									23	9
	PACKING, PREFORMED: piston 923560 (30612) (Component of PARTS KIT-3930-075-0160)	EA	1									23	10
5157-7418	SPRING, HELICAL COMPRESSION: piston 5088 (93784)	EA	1	*	*	*	*	*	*	*	*	23	11
	PISTON: valve 5087 (93784)	EA	1	*	*	*	*	*	*	*	*	23	12
	POPPET: valve 5083 (93784)	EA	1	*	*	*	*	*	*	*	*	23	13
	PACKING, PREFORMED: piston 923559 (30612) (Component of PARTS KITS-3930-075-0160)	EA	1									23	14
	RING: backup 5082 (93784) (Component of PARTS KIT-3930-075-0160)	EA	1									23	15
	POPPET: valve 5085 (93784)	EA	1	*	*	*	*	*	*	*	*	23	16
	CAP: check valve 5086 (93784)	EA	1	*	*	*	*	*	*	*	*	23	17
	PACKING, PREFORMED: cap 921205 (30612) (Component of PARTS KIT-3930-075-0160)	EA	1									23	18
	PLUG: valve inlet 3389 (93784)	EA	1	*	*	*	*	*	*	*	*	23	19
	PACKING, PREFORMED: plug 921206 (09367)	EA	1	*	*	*	*	*	*	*	*	23	20
	PLUG: valve inlet, top 4993156 (30612)	EA	1	*	*	*	*	*	*	*	*	23	21

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P F		PACKING, PREFORMED: plug, top 921205 (30612)	EA	1	*	*	*	*	*	*	*	*	23	22
P F		INLET SECTION: valve 5004A4 (93784)	EA	1	*	*	*	*	*	*	*	*	23	23
X1		PACKING, PREFORMED: inlet section 4253818 (30612) (Component of PARTS KIT-3930-075-0160)	EA	1									23	24
P F		PLUNGER SECTION ASSEMBLY: tilt 5002A42 (93784)	EA	1	*	*	*	*	*	*	*	*	23	-
P F		PLUG: plunger section, tilt 5079A (93784)	EA	1	*	*	*	*	*	*	*	*	23	25
P F	5330-842-8341	PACKING, PREFORMED: plug 921349 (30612)	EA	1	*	*	*	*	*	*	*	*	23	26
P F		HOUSING: plunger assembly 5005A1 (93784)	EA	1	*	*	*	*	*	*	*	*	23	27
P F	5305-071-1313	SCREW, MACHINE: 1/4-20x3/8, plate mounting MS51957-77 (96906)	EA	2	*	*	*	*	*	*	*	*	23	28
P F		PLATE: seal, plunger 5012 (93784)	EA	2	*	*	*	*	*	*	*	*	23	29
P F		WIPER: plunger 5029 (93784) (Component of PARTS KIT-3930-075-0160)	EA	2	*	*	*	*	*	*	*	*	23	30
X1		PACKING, PREFORMED: wiper 923376 (30612) (Component of PARTS KIT-3930-075-0160)	EA	2									23	31
X1		PLUNGER: tilt section 5031 (93784)	EA	1									23	32
P F	5340-191-6593	SEAT: spring 5013 (93784)	EA	2	*	*	*	*	*	*	*	*	23	33
P F	5360-157-7414	SPRING, HELICAL COMPRESSION: plunger 5014 (93784)	EA	1	*	*	*	*	*	*	*	*	23	34
P F		CAP: plunger 5028 (93784)	EA	1	*	*	*	*	*	*	*	*	23	35
P F		SCREW, SHOULDER: special 5015 (93784)	EA	1	*	*	*	*	*	*	*	*	23	36
P F	5305-983-8084	SCREW, CAP, SOCKET HEAD: cap mounting MS16997-60 (96906)	EA	2	*	*	*	*	*	*	*	*	23	37
X1		PACKING, PREFORMED: plunger assembly 4253818 (30612) (Component of PARTS KIT-3930-075-0160)	EA	1									23	38
P F		POPPET: control valve 5011 (93784)	EA	1	*	*	*	*	*	*	*	*	23	39
P F	5360-157-7372	SPRING: control valve 5064 (93784)	EA	1	*	*	*	*	*	*	*	*	23	40
P F		PLUNGER SECTION ASSEMBLY: lift 5002L5 (93784)	EA	1	*	*	*	*	*	*	*	*	23	-
P F	4820-349-9089	RELIEF VALVE: plunger section 5060 (93784)	EA	1	*	*	*	*	*	*	*	*	23	-
P F		NUT, PLAIN CAP: adjusting screw 4131659 (30612)	EA	1	*	*	*	*	*	*	*	*	23	41
P F		WASHER, FLAT: adjusting screw 4388 (93784)	EA	2	*	*	*	*	*	*	*	*	23	42
P F		NUT, PLAIN HEXAGON: jam, adjusting screw 3514 (93784)	EA	1	*	*	*	*	*	*	*	*	23	43

(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REF NUMBER & MFR CODE / USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1-YR ALW PER 100 EQUIP CNTGY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATION (a) FIG. NO.	(b) ITEM NO.
	SCREW: valve, adjusting 5065 (93784)	EA	1	*	*	*	*	*	*	*	*	23	44
0-157-7417	SPRING, HELICAL COMPRESSION: adjusting screw 5063 (93784)	EA	1	*	*	*	*	*	*	*	*	23	45
	POPPET: valve 5061 (93784)	EA	1	*	*	*	*	*	*	*	*	23	46
	PLUG: valve 5084 (93784)	EA	1	*	*	*	*	*	*	*	*	23	47
	PACKING, PREFORMED: plug 921349 (30612) (Component of PARTS KIT - 3930-075-0160)	EA	1									23	48
	RING: backup 5067 (93784) (Component of PARTS KIT 3930-075-0160)	EA	1									23	49
	PACKING, PREFORMED: piston 923560 (30612) (Component of PARTS KIT - 3930-075-0160)	EA	1									23	50
0-157-7418	SPRING, HELICAL COMPRESSION: piston 5088 (93784)	EA	1	*	*	*	*	*	*	*	*	23	51
	PISTON: valve 5087 (93784)	EA	1	*	*	*	*	*	*	*	*	23	52
	POPPET: valve 5083 (93784)	EA	1	*	*	*	*	*	*	*	*	23	53
	PACKING, PREFORMED: piston 923559 (30612) (Component of PARTS KIT - 3930-075-0160)	EA	1									23	54
	RING: backup 5082 (93784) (Component of PARTS KIT - 3930-075-0160)	EA	1									23	55
	POPPET: valve 5085 (93784)	EA	1	*	*	*	*	*	*	*	*	23	56
	CAP: relief valve 5086 (93784)	EA	1	*	*	*	*	*	*	*	*	23	57
	PACKING, PREFORMED: cap 921205 (30612) (Component of PARTS KIT - 3930-075-0160)	EA	1									23	58
-071-1313	SCREW, MACHINE: 1/4-20 x 3/8, plate mounting MS51957-77 (96906)	EA	2	*	*	*	*	*	*	*	*	23	59
	PLATE: seal, plunger 5012 (93784)	EA	2	*	*	*	*	*	*	*	*	23	60
	WIPER: plunger 5029 (93784) (Component of PARTS KIT - 3930-075-0160)	EA	2	*	*	*	*	*	*	*	*	23	61
	PACKING, PREFORMED: wiper 923376 (30612) (Component of PARTS KIT - 3930-075-0160)	EA	2									23	62
	PLUNGER: lift section 5031 (93784)	EA	1									23	63
	HOUSING: w/plunger, assembly 5005L5 (93784)	EA	1	*	*	*	*	*	*	*	*	23	64
-191-6593	SEAT: srping 4995323 (30612)	EA	2	*	*	*	*	*	*	*	*	23	65
-157-7414	SPRING, HELICAL COMPRESSION: plunger 5014 (93784)	EA	1	*	*	*	*	*	*	*	*	23	66

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REF NUMBER & MFR CODE / USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1-YR ALW PER 100 EQUIP CNTGY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATION (a) FIG. NO.	(b) ITEM NO
P F		SCREW, SHOULDER: special 5015 (93784)	EA	1	*	*	*	*	*	*	*	*	23	67
P F		CAP: plunger 5028 (93784)	EA	1	*	*	*	*	*	*	*	*	23	68
P F	5305-983-8084	SCREW, CAP, SOCKET HEAD: cap mounting MS16997-60 (96906)	EA	2	*	*	*	*	*	*	*	*	23	69
X1		PACKING, PREFORMED: plunger assembly 4253818 (30612) (Component of PARTS KIT - 3930-075-0160)	EA	1									23	70
P F		POPPET: control valve 5648 (93784)	EA	1	*	*	*	*	*	*	*	*	23	71
P F	5360-157-7372	SPRING: control valve 5064 (93784)	EA	1	*	*	*	*	*	*	*	*	23	72
P F		OUTLET SECTION: valve 5003A1 (93784)	EA	1	*	*	*	*	*	*	*	*	23	73
P F		ROD: tie, valve assembly 5089-2 (93784)	EA	1	*	*	*	*	*	*	*	*	23	74
P F	5310-732-0558	NUT, PLAIN HEXAGON: valve assembly MS51968-8 (96906)	EA	2	*	*	*	*	*	*	*	*	23	75
P F		ROD: tie, valve assembly 5069-2 (93784)	EA	2	*	*	*	*	*	*	*	*	23	76
P F	5310-880-7744	NUT, PLAIN HEXAGON: valve assembly MS51967-5 (96906)	EA	4	*	*	*	*	*	*	*	*	23	77
		GROUP 24 - MAST AND ASSOCIATED PARTS	48 27506											
P2 HR	3930-451-4556	OUTER MAST ASSEMBLY: lift 4827497 (30612)	EA	1				*	*	*	*	*	24	1
P F	3120-237-6370	BUSHING: pivot 4715712 (30612)	EA	2	*	*	*	*	*	*	*	*	24	2
P F		STUD: bearing 4812974 (30612)	EA	2	*	*	*	*	*	*	*	*	24	3
P F	5365-151-7129	SHIM: 0.015 thk., bearing 4812930 (30612)	EA	10	*	*	*	*	*	*	*	*	24	4
P F	5365-151-7128	SHIM: 0.040 thk., bearing 4812929 (30612)	EA	6	*	*	*	*	*	*	*	*	24	5
P F	3110-182-8632	BEARING, BALL, ANNULAR: mast 4812920 (30612)	EA	8	*	*	*	*	*	*	*	*	24	6
P F	5310-780-8398	NUT, SELF-LOCKING, HEXAGON: cylinder bracket 1016904 (18876)	EA	4	*	*	*	*	*	*	*	*	24	7
P F		BRACKET: lift cylinder 4829288 (30612)	EA	1	*	*	*	*	*	*	*	*	24	8
P F	5310-820-6653	WASHER, LOCK: cylinders MS35338-50 (96906)	EA	4	*	*	*	*	*	*	*	*	24	9
P F	5305-725-4098	SCREW, CAP, HEXAGON HEAD: cylinders MS90726-160 (96906)	EA	2	*	*	*	*	*	*	*	*	24	10
P F	5305-226-7768	SCREW, CAP, HEXAGON HEAD: bracket MS90726-115 (96906)	EA	2	*	*	*	*	*	*	*	*	24	11
P F	5305-725-4187	SCREW, CAP, HEXAGON HEAD: chain guard MS90726-114 (96906)	EA	2	*	*	*	*	*	*	*	*	24	12

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06-225-8497	SCREW, CAP, HEXAGON HEAD: chain guard MS90725-32 (96906)	EA	2	*	*	*	*	*	*	*	*	24	13
10-407-9566	WASHER, LOCK: chain guard MS35338-45 (96906)	EA	2	*	*	*	*	*	*	*	*	24	14
	GUARD: chain 4827508 (30612)	EA	2									24	15
05-958-5254	SCREW, MACHINE: crosshead mounting MS35190-307 (96906)	EA	4	*	*	*	*	*	*	*	*	24	16
	PIN: bearing roller 4817267 (30612)	EA	2	*	*	*	*	*	*	*	*	24	17
	RING, RETAINING: pin 5100-137 (89462)	EA	2	*	*	*	*	*	*	*	*	24	18
	CHAIN: lift 4756788 (30612)	EA	2	*	*	*	*	*	*	*	*	24	19
	SPACER: roller 4819938 (30612)	EA	2	*	*	*	*	*	*	*	*	24	20
	BEARING, ROLLER: chain guide Z99507H (43334)	EA	2	*	*	*	*	*	*	*	*	24	21
	CROSSHEAD: chain bearing 4817266 (30612)	EA	2									24	22
15-844-3965	PIN, SPRING: interlock MS16562-48 (96906)	EA	1	*	*	*	*	*	*	*	*	24	23
	SCREW: adjusting, interlock 4754948 (30612)	EA	1	*	*	*	*	*	*	*	*	24	24
	INTERLOCK: mast 4818233 (30612)	EA	1									24	25
	SPACER: interlock 4818297 (30612)	EA	1	*	*	*	*	*	*	*	*	24	26
60-103-8823	SPRING, HELICAL EXTENSION: interlock 4727275 (30612)	EA	1	*	*	*	*	*	*	*	*	24	27
05-042-6417	SCREW, CAP, HEXAGON HEAD: interlock MS90725-113 (96906)	EA	1	*	*	*	*	*	*	*	*	24	28
	INNER MAST ASSEMBLY 4827499 (30612)	EA	1				*	*	*	*	*	24	29
	STUD: bearing 4812965 (30612)	EA	2	*	*	*	*	*	*	*	*	24	30
20-359-9085	LINK: connecting, chain S433 (72625)	EA	2	*	*	*	*	*	*	*	*	24	31
	ANCHOR: chain 4735369 (30612)	EA	2	*	*	*	*	*	*	*	*	24	32
10-763-8905	NUT, PLAIN, HEXAGON: chain anchor MS51968-20 (96906)	EA	4	*	*	*	*	*	*	*	*	24	33
	ELBOW, PIPE TO TUBE: cylinder R944-10 (70026) 4817292 1.0-18	EA	1	*	*	*	*	*	*	*	*	24	34
	TUBE ASSEMBLY: cylinder 4821577 (30612)	EA	1	*	*	*	*	*	*	*	*	24	35
	ADAPTER, STRAIGHT: PIPE TO TUBE: cylinder R544-10 (70026) 4817295 1.0-18	EA	1	*	*	*	*	*	*	*	*	24	36
00-261-5549	4905847 - NUT		2										

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P F	5305-225-8499	SCREW, CAP, HEXAGON HEAD: clamp mounting MS90725-34 (96906)		EA	1	*	*	*	*	*	*	*	*	24	37
X2 F		CLAMP: loop, cylinder TC206 (75272)		EA	1									24	38
P F	5310-407-9566	WASHER, LOCK: clamp MS35338-45 (96906)		EA	1	*	*	*	*	*	*	*	*	24	39
P F	5310-880-7744	NUT, PLAIN HEXAGON: clamp MS51967-5 (96906)		EA	1	*	*	*	*	*	*	*	*	24	40
P2 HR	3930-451-4555	INTERMEDIATE MAST ASSEMBLY: lift 4927498 (30612)		EA	1				*	*	*	*	*	24	41
P F		STUD: bearing 4712965 (30612)		EA	2	*	*	*	*	*	*	*	*	24	42
P F		NUT, SELF-LOCKING: 5/18-18, marsden, cylinders 917007 (30612)		EA	2	*	*	*	*	*	*	*	*	24	43
P F	5315-849-9857	PIN, COTTER: tilt, cylinder yoke pin MS24665-439 (96906)		EA	4	*	*	*	*	*	*	*	*	24	44
P F	5315-151-8724	PIN, STRAIGHT, HEADLESS: drilled, tilt cylinder 4707399 (30612)		EA	2	*	*	*	*	*	*	*	*	24	45
P F	5310-809-8533	WASHER, FLAT: yoke pin MS27183-23 (96906)		EA	2	*	*	*	*	*	*	*	*	24	46
P F	5305-269-3213	SCREW, CAP, HEXAGON HEAD: drilled head, mast pin 4335601 (30612)		EA	4	*	*	*	*	*	*	*	*	24	47
P F	5310-637-9541	WASHER, LOCK: mast pin MS35338-46 (96906)		EA	4	*	*	*	*	*	*	*	*	24	48
P F	5315-151-8725	PIN: mast mounting 4718482 (30612)		EA	2	*	*	*	*	*	*	*	*	24	49
P O	4730-050-4205	FITTING, LUBRICATION: mast pin MS15001-3 (96906)		EA	2	*	*	*	*	*	*	*	*	24	50
X2 F		LOCKWIRE: mast pin mounting screw 4742113 (30612)		EA	2									24	51
P O	5330-811-1058	PACKING, PREFORMED: flow regulator 921205 (30612)		EA	1	*	*	*	*	*	*	*	*	24	52
P O		CONNECTOR: flow regulator 4821559 (30612)		EA	1	*	*	*	*	*	*	*	*	24	53
P O		REGULATOR: flow, hydraulic oil PD278A10 (07988)		EA	1	*	*	*	*	*	*	*	*	24	54
X2 O		ELBOW: flow regulator connector 925943 (30612)		EA	1									24	55
P O	4730-172-0034	FITTING, LUBRICATION: yoke pin, tilt cylinder MS15003-6 (96906)		EA	2	*	*	*	*	*	*	*	*	24	56
P	5310-880-7744	NUT, PLAIN HEXAGON: bracket mounting MS51967-8 (96906)		EA	1	*	*	*	*	*	*	*	*	24	57
P O	5310-637-9541	WASHER, LOCK: bracket mounting MS35338-46 (96906)		EA	1	*	*	*	*	*	*	*	*	24	58
X2 O		BRACKET: cylinder cluster 4821578 (30612)		EA	1									24	59

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5305-269-3214	SCREW, CAP, HEXAGON HEAD: bracket mounting MS90725-64 (96906)		EA	1	*	*	*	*	*	*	*	*	24	60
	GUARD: hydraulic tube 4819814 (30612)		EA	1									24	61
5310-637-9541	WASHER, LOCK: tube guard MS35338-46 (96906)		EA	1	*	*	*	*	*	*	*	*	24	62
5305-269-3210	SCREW, CAP, HEXAGON HEAD: tube guard MS90725-59 (96906)		EA	1	*	*	*	*	*	*	*	*	24	63
5305-704-5910	SCREW, CAP, HEXAGON HEAD: bearing mtg MS90725-162 (96906)		EA	2	*	*	*	*	*	*	*	*	24	64
	GROUP 25 - LIFT CYLINDER CLUSTER ASSEMBLY													
5930-451-4552	LIFT CYLINDER CLUSTER ASSEMBLY: carriage 4824178 (30612)		EA	1	*	*	*	*	*	*	*	*	25	-
	RAM ASSEMBLY: cylinder cluster 4824331 (30612)		EA	1									25	1
	BLOCK: wear, cylinder 4817460 (30612) (Component of PARTS KIT-4906380)		EA	3									25	2
	RING: wiper, ram 4817506 (30612) (Component of PARTS KIT-4906380)		EA	3									25	3
	PACKING, PREFORMED: gland nut 4817461 (30612) (Component of PARTS KIT-4906380)		EA	3									25	4
	PELLET: nylon, locking 4816749 (30612) (Component of PARTS KIT-4906380)		EA	6									25	5
	NUT: gland, packing 4817457 (30612)		EA	3	*	*	*	*	*	*	*	*	25	6
	RING: backup, packing 926622 (30612) (Component of PARTS KIT-4906380)		EA	3									25	7
	PACKING, PREFORMED: gland nut 925257 (30612) (Component of PARTS KIT-4906380)		EA	3									25	8
	RING: stop 4817458 (30612)		EA	3	*	*	*	*	*	*	*	*	25	9
5305-151-8683	SCREW: bleed 4816948 (30612)		EA	3	*	*	*	*	*	*	*	*	25	10
	RAM ASSEMBLY: cylinder 4824329 (30612)		EA	2									25	11
	CLUSTER ASSEMBLY: cylinder 4824324 (30612)		EA	1									25	12
	PIN, SPRING: cylinder locating MS16562-250 (96906)		EA	1									25	13

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REF NUMBER & MFR CODE / USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1-YR ALW PER 100 EQUIP CNTGY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATION (a) FIG. NO.	(b) ITEM NO
		GROUP 26 - LIFT CYLINDER ASSEMBLY												
P2 FR	3930-451-4553	LIFT CYLINDER ASSEMBLY: carriage 4824179 (30612)	EA	1	*	*	*	*	*	*	*	*	26	-
X1		RAM ASSEMBLY: lift cylinder 4824322 (30612)	EA	1									26	1
P O	5305-151-8683	SCREW: bleed 4816948 (30612)	EA	1	*	*	*	*	*	*	*	*	26	2
X1		TUBE ASSEMBLY: lift cylinder 4824320 (30612)	EA	1									26	3
X1		BLOCK: wear 4817460 (30612) (Component of PARTS KIT-4906380)	EA	1									26	4
X1		PELLET: nylon, locking 4816749 (30612) (Component of PARTS KIT-4906380)	EA	2									26	5
X1		RING: wiper 4817506 (30612) (Component of PARTS KIT-4906380)	EA	1									26	6
X1		PACKING, PREFORMED: gland nut 4817461 (30612) (Component of PARTS KIT-4906380)	EA	1									26	7
P F		NUT: gland, packing 4817457 (30612)	EA	1	*	*	*	*	*	*	*	*	26	8
X1		RING: backup, packing 926622 (30612) (Component of PARTS KIT-4906380)	EA	1									26	9
X1		PACKING, PREFORMED: gland nut 925257 (30612)	EA	1									26	10
P F		RING: stop, ram 4817458 (30612)	EA	1	*	*	*	*	*	*	*	*	26	11
		GROUP 27 - LIFTING FORK AND ASSOCIATED PARTS												
X1		PIN: fork lock 4804776 (30612) (Component of PARTS KIT-4999821)	EA	2									27	1
X1		SPRING, HELICAL COMPRESSION: fork lock 4807680 (30612) (Component of PARTS KIT-4999821)	EA	2									27	2
X1		WASHER, FLAT: 1/4, fork lock MS27183-10 (96906) (Component of PARTS KIT-4999821)	EA	4									27	3
X1		LATCH: fork lock 4804779 (30612) (Component of PARTS KIT-4999821)	EA	2									27	4
X1		PIN, COTTER: 1/16 x 3/8, fork lock MS24665-130 (96906) (Component of PARTS KIT-4999821)	EA	2									27	5
X1		PIN, STRAIGHT, HEADED: drilled, fork lock MS20392-2C227 (96906) (Component of PARTS KIT-4999821)	EA	2									27	6
P2 O	3040-233-7974	FORK, LIFTING: carriage 4783362 (30612)	EA	2	*	*	*	*	*	*	*	*	27	7

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	GROUP 28 - BACKREST AND CARRIAGE ASSEMBLY												
	BACKREST ASSEMBLY: forks 4804038 (30612)	EA	1	*	*	*	*	*	*	*	*	28	1
5310-820-6653	WASHER, LOCK: backrest mounting MS35338-50 (96906)	EA	4	*	*	*	*	*	*	*	*	28	2
5305-044-5503	SCREW, CAP, HEXAGON HEAD: backrest mounting MS90725-160 (96906)	EA	4	*	*	*	*	*	*	*	*	28	3
3110-182-8632	BEARING, BALL, ANNULAR: carriage 4812920 (30612)	EA	4	*	*	*	*	*	*	*	*	28	4
5365-151-7128	SHIM: 0.040 bearing 4812929 (30612)	EA	4	*	*	*	*	*	*	*	*	28	5
5365-151-7129	SHIM: 0.015 bearing 4812930 (30612)	EA	4	*	*	*	*	*	*	*	*	28	6
	FRAME ASSEMBLY: carriage 4827510 (30612)	EA	1	*	*	*	*	*	*	*	*	28	7
	SPACER: support 4817727 (30612)	EA	1	*	*	*	*	*	*	*	*	28	8
5310-820-6653	WASHER, LOCK: spacer MS35338-50 (96906)	EA	2	*	*	*	*	*	*	*	*	28	9
5305-724-5911	SCREW, CAP, HEXAGON HEAD: support MS90725-163 (96906)	EA	1	*	*	*	*	*	*	*	*	28	10
5305-782-9494	SCREW, CAP, HEXAGON HEAD: support MS90725-114 (96906)	EA	1	*	*	*	*	*	*	*	*	28	11
3020-359-9085	LINK, CONNECTING: chain, master link S433 (72625)	EA	1	*	*	*	*	*	*	*	*	28	12
	STUD: bearing, lower 4812965 (30612)	EA	2									28	13
	STUD: bearing, upper 4812965 (30612)	EA	2	*	*	*	*	*	*	*	*	28	14
	SCREW, SELF-LOCKING: 1/4-20x5/8, bearing mounting 926680 (30612)	EA	2									28	15
	GROUP 29 HYDRAULIC FILTER AND ASSOCIATED PARTS												
5310-768-0318	NUT, PLAIN HEXAGON: filter bracket mounting MS51967-14 (96906)	EA	1	*	*	*	*	*	*	*	*	29	1
5310-584-5272	WASHER, LOCK: filter bracket mounting MS35338-48 (96906)	EA	3	*	*	*	*	*	*	*	*	29	2
5305-044-4153	SCREW, CAP, HEXAGON HEAD: filter mounting MS90725-109 (96906)	EA	2	*	*	*	*	*	*	*	*	29	3
5305-042-6417	SCREW, CAP, HEXAGON HEAD: filter bracket mounting MS90725-113 (96906)	EA	1	*	*	*	*	*	*	*	*	29	4
	BRACKET: filter mounting 4827771 (30612)	EA	1	*	*	*	*	*	*	*	*	29	5
	FILTER ASSEMBLY: hydraulic 30H62-2500 (92863)	EA	1	*	*	*	*	*	*	*	*	29	6
4330-477-8280	ELEMENT: filter 529206-5110 (92863)	EA	1	*	*	*	*	*	*	*	*	29	7
	PACKING, PREFORMED: filter 923816 (30612)	EA	1	*	*	*	*	*	*	*	*	29	8

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REF NUMBER & MFR CODE / USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1-YR ALW PER 100 EQUIP CNTGY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATION (a) FIG. NO.	(b) ITEM NO.
		GROUP 30 HYDRAULIC LINES AND ASSOCIATED PARTS												
P O	4730-908-3194	CLAMP, HOSE: hose mounting MS35842-11 (96906)	EA	4	*	*	*	*	*	*	*	*	30	1
P O		HOSE, NONMETALLIC: 3/4 ID x 12-1/2 in. lg., reservoir to filter 4809227 (30612)	EA	1	*	*	*	*	*	*	*	*	30	2
P O		ELBOW, PIPE TO HOSE: 90 deg., barb, w/preformed packing 2408-12-16 (22031)	EA	2	*	*	*	*	*	*	*	*	30	3
P O	4720-043-5452	HOSE, NONMETALLIC: 3/4 ID x 29 in. lg., filter to pump 4785425 (30612)	EA	1	*	*	*	*	*	*	*	*	30	4
P O		ELBOW, HOSE TO TUBE: 90 deg., barb, w/preformed packing 4601-12 NWO (22031)	EA	1	*	*	*	*	*	*	*	*	30	5
P O	4730-044-4861	PLUG: tapped plug MS49005-S8 (96906)	EA	3	*	*	*	*	*	*	*	*	30	6
P O		PLUG: 1-1/16 - 12 NPTF x 1/4, tapped 4811496 (30612)	EA	1	*	*	*	*	*	*	*	*	30	7
P O		ELBOW, BOSS TO HOSE: 1-1/16 - 12 NPTF x 7/8 - 14 JIC, w/preformed packing 924046 (30612)	EA	1	*	*	*	*	*	*	*	*	30	8
P O		HOSE ASSEMBLY: w/fittings, pump to valve 4811718 (30612)	EA	1	*	*	*	*	*	*	*	*	30	9
P O		HOSE ASSEMBLY: w/fittings, pump to valve 4812991 (30612)	EA	2	*	*	*	*	*	*	*	*	30	10
P O		ELBOW, BOSS TO HOSE: 90 deg., barb, 7/8 - 14 x 3/4 - 16 JIC 924786 (30612)	EA	3	*	*	*	*	*	*	*	*	30	11
P O		ELBOW, BOSS TO HOSE: 1-5/16-12 x 1-1/4 hose, tapped 1/4 NPTF 4809304 (30612)	EA	1	*	*	*	*	*	*	*	*	30	12
P O	5335-151-7138	SCREEN: filter 4819428 (30612)	EA	1	*	*	*	*	*	*	*	*	30	13
P O	4730-908-3193	CLAMP, HOSE: SAE No. 24, hose mounting MS35842-12 (96906)	EA	2	*	*	*	*	*	*	*	*	30	14
P O		HOSE: 1-1/4 id, x 21 in. lg. 4828548 (30612)	EA	1	*	*	*	*	*	*	*	*	30	15
P O		CYLINDER ASSEMBLY: tilt 4827813 (30612)	EA	2	*	*	*	*	*	*	*	*	30	16
P O	4730-811-1848	ELBOW, PIPE TO TUBE: 7/16 - 20 x 7/16 - 20 JIC, 90 deg., tilt cylinder 922571 (30612)	EA	3	*	*	*	*	*	*	*	*	30	17
P O		HOSE ASSEMBLY: w/fittings, right cylinder to bulkhead 4811495 (30612)	EA	1	*	*	*	*	*	*	*	*	30	18
P O		HOSE ASSEMBLY: w/fittings, left cylinder to bulkhead 4818828 (30612)	EA	1	*	*	*	*	*	*	*	*	30	19
P O	4720-232-5745	HOSE ASSEMBLY: bulkhead to tilt cylinder 4808337 (30612)	EA	2	*	*	*	*	*	*	*	*	30	20
X2 O		PLUG, PIPE: 3/8 NPTF, reservoir drain MS49005-6 (96906)	EA	1									30	21
P O		TEE: bulkhead, 7/16 - 20 JIC 4WJJTXS (30536)	EA	2	*	*	*	*	*	*	*	*	30	22
X2 O		PLATE: bulkhead 4826-98 (30612)	EA	1									30	23

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	TUBE ASSEMBLY: pump to bulkhead 4828497 (30612)		EA	2									30	24
	ADAPTER, TUBE: 7/16 - 20 w/preformed packing x 7/16 - 20 JIC, tube to valve 202702-4-4 (00624)		EA	2	*	*	*	*	*	*	*	*	30	25
	POPPET: flow restriction, valve to tilt cylinders 4499-6 (93784)		EA	2	*	*	*	*	*	*	*	*	30	26
4730-138-3910	ELBOW, BOSS TO HOSE: w/preformed packing, tapped 4810316 (30612)		EA	1	*	*	*	*	*	*	*	*	30	27
	ELBOW, BOSS TO HOSE: 7/16-20, 45 deg., front right tilt cylinder 923643 (30612)		EA	1	*	*	*	*	*	*	*	*	30	28
5305-225-3839	SCREW, CAP, HEXAGON HEAD: plate mounting MS90725-8 (96906)		EA	1	*	*	*	*	*	*	*	*	30	29
5310-582-5965	WASHER, LOCK: plate mounting MS35338-44 (96906)		EA	1	*	*	*	*	*	*	*	*	30	30
5310-761-6882	NUT, PLAIN, HEXAGON: plate mounting MS51967-2 (96906)		EA	1	*	*	*	*	*	*	*	*	30	31
	GROUP 31 TILT CYLINDER AND ASSOCIATED PARTS													
	BOLT, SHOULDER: 1/2-13, tilt cylinder pivot 4255583 (30612)		EA	2	*	*	*	*	*	*	*	*	31	1
	NUT: 1/2-13, flanged 2872 (82465)		EA	2	*	*	*	*	*	*	*	*	31	2
5305-071-1769	SCREW, CAP, HEXAGON HEAD: yoke mounting MS90725-115 (96906)		EA	2	*	*	*	*	*	*	*	*	31	3
	YOKE: tilt cylinder 4827811 (30612)		EA	2	*	*	*	*	*	*	*	*	31	4
5310-584-5272	WASHER, LOCK: yoke, mounting MS35338-48 (96906)		EA	2	*	*	*	*	*	*	*	*	31	5
5310-768-0318	NUT, PLAIN HEXAGON: yoke mounting MS51967-14 (96906)		EA	2	*	*	*	*	*	*	*	*	31	6
	CYLINDER ASSEMBLY: tilt 4827813 (30612)		EA	2	*	*	*	*	*	*	*	*	31	7
	PACKING, PREFORMED: spacer 923811 (30612) (Component of PARTS KIT-3930-727-5189)		EA	2									31	8
	SPACER: rod 4769587 (30612)		EA	2	*	*	*	*	*	*	*	*	31	9
	SPACER: rod 4769572 (30612)		EA	2	*	*	*	*	*	*	*	*	31	10
	PACKING, PREFORMED: plunger 923934 (30612) (Component of PARTS KIT-3930-727-5189)		EA	2									31	11
	WASHER: backup 4753046 (30612) (Component of PARTS KIT-3930-727-5189)		EA	2									31	12
	PACKING, PREFORMED 4753045 (30612) (Component of PARTS KIT-3930-727-5189)		EA	2									31	13

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X1		WASHER: backup 4753046 (30612) (Component of PARTS KIT-3930-727-5189)	EA	2									31	14
P F		PISTON: tilt cylinder 4753035 (30612)	EA	2	*	*	*	*	*	*	*	*	31	15
P F	5315-013-7228	PIN, COTTER: slotted nut MS24665-423 (96906)	EA	2	*	*	*	*	*	*	*	*	31	16
P F		NUT, SLOTTED, HEXAGON: 7/8-9, plunger 925103 (30612)	EA	2	*	*	*	*	*	*	*	*	31	17
P F		PLUNGER: tilt cylinder 4747611 (30612)	EA	2	*	*	*	*	*	*	*	*	31	18
X1		PACKING, PREFORMED: gland nut 4753044 (30612) (Component of PARTS KIT-3930-727-5189)	EA	2									31	19
X1		WASHER: backup 4752722 (30612) (Component of PARTS KIT-3930-727-5189)	EA	2									31	20
X1		PACKING, PREFORMED: gland nut 923814 (30612) (Component of PARTS KIT-3930-727-5189)	EA	2									31	21
P F		NUT: gland 4753030 (30612)	EA	2	*	*	*	*	*	*	*	*	31	22
X1		PACKING, PREFORMED: 4747632 (30612) (Component of PARTS KIT-3930-727-5189)	EA	2									31	23
P F		TUBE: cylinder 4804029 (30612)	EA	2	*	*	*	*	*	*	*	*	31	24
		GROUP 32 - HYDRAULIC OIL RESERVOIR												
P F	5305-082-6739	SCREW, MACHINE: 3/8-16x1, reservoir mounting MS51959-111 (96906)	EA	1	*	*	*	*	*	*	*	*	32	1
P F		RESERVOIR: hydraulic oil ~~4827902~~ 7827602 (30612) 4 GALS.	EA	1	*	*	*	*	*	*	*	*	32	2
P O	3930-807-6667	BREATHER: oil reservoir 4735665 (30612)	EA	1	*	*	*	*	*	*	*	*	32	-
X1		BODY: cap assembly B565859 (90005)	EA	1									32	3
X1		ELEMENT: filter R32-20 (90005)	EA	1									32	4
X1		COVER: breather A1994A (90005)	EA	1									32	5
X1		WASHER, LOCK: assembly mounting 901004K1 (90005)	EA	1									32	6
X1		SCREW, MACHINE: assembly mounting 902378K1 (90005)	EA	1									32	7
P O		SCREEN: filler 4806537 (30612)	EA	1	*	*	*	*	*	*	*	*	32	8
P O		DIPSTICK: oil lever indicator 4050 (01943)	EA	1	*	*	*	*	*	*	*	*	32	9
P O	5310-732-0558	NUT, PLAIN HEXAGON: reservoir mounting MS51967-8 (96906)	EA	3	*	*	*	*	*	*	*	*	32	10
P O	5310-637-9541	WASHER, LOCK: reservoir mounting MS35338-46 (96906)	EA	3	*	*	*	*	*	*	*	*	32	11

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10-080-6005	WASHER, FLAT: reservoir mounting MS27183-14 (96906)		EA	3	*	*	*	*	*	*	*	*	32	12
05-269-3213	SCREW, CAP, HEXAGON HEAD: reservoir mounting MS90725-62 (96906)		EA	2	*	*	*	*	*	*	*	*	32	13
	RELAY, THERMAL: reservoir 4805700 (30612)		EA	2	*	*	*	*	*	*	*	*	32	14
10-934-9757	NUT, PLAIN HEXAGON: relay mounting MS35649-282 (96906)		EA	4	*	*	*	*	*	*	*	*	32	15
10-045-3299	WASHER, LOCK: relay mounting MS35338-42 (96906)		EA	4	*	*	*	*	*	*	*	*	32	16
	4888701EE TAINER 4888195 / TE M ALL EE 33-4 AND BAND 33-2													
	GROUP 33 - DRIVE MOTOR ASSEMBLY													
	HOUSING: field, drive motor 53-902-481-001 (88310)		EA	1									33	1
	STUD ASSEMBLY: field terminal 53-607-095-801 (88310)		EA	2	*	*	*	*	*	*	*	*	33	2
	STUD ASSEMBLY: armature terminal 53-608-115-801 (88310)		EA	2	*	*	*	*	*	*	*	*	33	3
	COVER: front, drive motor 53-805-975 (88310) 4810834-4		EA	1	*	*	*	*	*	*	*	*	33	4
	CONNECTOR: cross, drive motor 53-620-182-501 (88310)		EA	1	*	*	*	*	*	*	*	*	33	5
	CONNECTOR: cross, drive motor 53-620-182-502 (88310)		EA	1	*	*	*	*	*	*	*	*	33	6
	PLATE, BRUSH: 53-701-940-501 (88310)		EA	1	*	*	*	*	*	*	*	*	33	7
5-068-0502	SCREW, CAP, HEXAGON HEAD: rocker arm mounting MS90725-6 (96906)		EA	4	*	*	*	*	*	*	*	*	33	8
0-209-0786	WASHER, LOCK: rocker arm mounting MS35335-33 (96906)		EA	4	*	*	*	*	*	*	*	*	33	9
	LEAD, ELECTRICAL: brush 53-608-114-501 (88310)		EA	2	*	*	*	*	*	*	*	*	33	10
	SPRING: brush holder 53-616-646-001 (88310)		EA	8	*	*	*	*	*	*	*	*	33	11
	BRUSH: ELECTRICAL CONTACT 53-612-865-004 (88310)		EA	4	*	*	*	*	*	*	*	*	33	12
5-543-4662	SCREW, MACHINE: brush mounting MS35265-61 (96906)		EA	4	*	*	*	*	*	*	*	*	33	13
7-446-4636	HOLDER ASSEMBLY: brush, w/springs 53-607-027-501 (88310)		EA	4	*	*	*	*	*	*	*	*	33	14
5-543-4662	SCREW, MACHINE: holder assembly mounting MS35265-61 (96906)		EA	8	*	*	*	*	*	*	*	*	33	15
0-045-3296	WASHER, LOCK: holder assembly mounting MS35338-43 (96906)		EA	8	*	*	*	*	*	*	*	*	33	16
0-014-5850	WASHER, FLAT: holder assembly mounting MS27183-42 (96906)		EA	8	*	*	*	*	*	*	*	*	33	17
	BEARING, BALL: front, drive motor 306SZZ (76062)		EA	1	*	*	*	*	*	*	*	*	33	18

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P2 F		HOUSING: front, drive motor 53-804-735-001 (88310)		EA	1	*	*	*	*	*	*	*	*	33	19
P F	5306-225-9087	BOLT, MACHINE: front housing mounting MS90726-32 (96906)		EA	8	*	*	*	*	*	*	*	*	33	20
P2 O		COVER: rear, drive motor 53-804-601 (88310) 4810833-5		EA	1	*	*	*	*	*	*	*	*	33	21
P2 F		HOUSING: rear, drive motor 53-804-628-001 (88310)		EA	1	*	*	*	*	*	*	*	*	33	22
P F	5305-225-8499	SCREW, CAP, HEXAGON HEAD: rear housing mounting MS90726-34 (96906)		EA	8	*	*	*	*	*	*	*	*	33	23
P F	5310-407-9566	WASHER, LOCK: rear housing mounting MS35338-45 (96906)		EA	8	*	*	*	*	*	*	*	*	33	24
P F	3110-185-6389	NUT, PLAIN ROUND: bearing mounting N08 (60038)		EA	1	*	*	*	*	*	*	*	*	33	25
P F	5365-803-7309	RING, RETAINING: bearing mounting 5100-43 (79136)		EA	1	*	*	*	*	*	*	*	*	33	26
P F		BEARING, BALL: rear, drive motor 5308F (76062)		EA	1	*	*	*	*	*	*	*	*	33	27
P F		SEAL, PLAIN ENCASED: rear bearing 4255312 (30612)		EA	1	*	*	*	*	*	*	*	*	33	28
P F		PACKING, PREFORMED: bearing retainer, rear AN6230-1866-30 (88044)		EA	1	*	*	*	*	*	*	*	*	33	29
P2 F		RETAINER: bearing, rear 53-705-02-001 (88310)		EA	1	*	*	*	*	*	*	*	*	33	30
P F	5305-616-5522	SCREW, CAP, HEXAGON HEAD: retainer mounting MS90725-60 (96906)		EA	4	*	*	*	*	*	*	*	*	33	31
P F	5310-637-9541	WASHER, LOCK: retainer mounting MS35338-46 (96906)		EA	4	*	*	*	*	*	*	*	*	33	32
P2 F		FAN: armature, drive motor 53-804-543-001 (88310)		EA	1	*	*	*	*	*	*	*	*	33	33
P F	5315-616-5522	KEY, WOODRUFF: fan mounting MS35756-12 (96906)		EA	1	*	*	*	*	*	*	*	*	33	34
P F	5365-205-4207	RING, RETAINING: fan mounting 5100-187 (79136)		EA	1	*	*	*	*	*	*	*	*	33	35
P F		ARMATURE ASSEMBLY: drive motor 53-705-933-501 (88310)		EA	1	*	*	*	*	*	*	*	*	33	36
P2 F		SHAFT: armature 53-705-931-501 (88310)		EA	1	*	*	*	*	*	*	*	*	33	37
P F		WINDING, FIELD: drive motor 53-902-509-501 (88310)		EA	1	*	*	*	*	*	*	*	*	33	38
P F	5305-763-7829	SCREW, MACHINE: yoke to field winding MS51959-99 (96906)		EA	8	*	*	*	*	*	*	*	*	33	39

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	GROUP 34 - HYDRAULIC PUMP MOTOR ASSEMBLY													
5-426-0696	MOTOR: hydraulic pump 450CS3 (88310) 4852917		EA	1	*	*	*	*	*	*	*	*	34	-
5-225-8497	SCREW, CAP, SOCKET HEAD: rear housing mounting M916997-80 (96906)		EA	4	*	*	*	*	*	*	*	*	34	1
0-407-9566	WASHER, LOCK: housing mounting MS35338-45 (96906)		EA	4	*	*	*	*	*	*	*	*	34	2
	HOUSING: rear, pump motor 53-805-587-001 (88310)		EA	1	*	*	*	*	*	*	*	*	34	3
0-109-1179	BEARING, BALL: rear, pump motor 206SZZ (76062)		EA	1	*	*	*	*	*	*	*	*	34	4
	COVER: rear, pump motor 53-804-562-501 (88310)		EA	1	*	*	*	*	*	*	*	*	34	5
5-803-9976	RING, RETAINING: armature fan 5100-131 (79136)		EA	1	*	*	*	*	*	*	*	*	34	6
	FAN: armature, pump motor 53-704-760-001 (88310)		EA	1	*	*	*	*	*	*	*	*	34	7
	KEY, MACHINE: armature fan 51-601-308-008 (88310)		EA	1	*	*	*	*	*	*	*	*	34	8
	ARMATURE ASSEMBLY: w/shaft, pump motor 53-704-759-501 (88310)		EA	1	*	*	*	*	*	*	*	*	34	9
0-109-1155	BEARING, BALL: front, pump motor 205SZZ (76052)		EA	1	*	*	*	*	*	*	*	*	34	10
	COIL ASSEMBLY: field, pump motor 53-805-321-501 (88310)		EA	1	*	*	*	*	*	*	*	*	34	11
	HOUSING: field, pump motor 53-902-094-001 (88310)		EA	1									34	12
5-763-7831	SCREW, MACHINE: pole shoe mounting MS51959-97 (96906)		EA	8	*	*	*	*	*	*	*	*	34	13
	CONNECTOR ASSEMBLY: cross, inside w/short terminals 4994060 (30612)		EA	1	*	*	*	*	*	*	*	*	34	14
	PLATE: brush 4994056 (30612)		EA	1	*	*	*	*	*	*	*	*	34	15
	HOUSING: front, pump motor 53-805-585-001 (88310)		EA	1	*	*	*	*	*	*	*	*	34	16
	STUD ASSEMBLY: terminal, field 53-607-094-801 (88310)		EA	1	*	*	*	*	*	*	*	*	34	17
	STUD ASSEMBLY: terminal, armature 53-620-026-801 (88310)		EA	1	*	*	*	*	*	*	*	*	34	18
5-582-5965	WASHER, LOCK: front housing MS35338-44 (96906)		EA	4	*	*	*	*	*	*	*	*	34	19
5-798-9380	SCREW, CAP, SOCKET HEAD: front housing MS16997-61 (96906)		EA	4	*	*	*	*	*	*	*	*	34	20
	COVER: front, pump motor 53-806-026 (88310)		EA	1	*	*	*	*	*	*	*	*	34	21
	BRACKET: front, motor mounting 4994057 (30612)		EA	1	*	*	*	*	*	*	*	*	34	22

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REF NUMBER & MFR CODE	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1-YR ALW PER 100 EQUIP CNTGY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATION (a) FIG. NO.	(b) ITEM NO.
P F	5305-225-8497	SCREW, CAP, HEXAGON HEAD: bracket mounting MS90725-32 (96906)		EA	6	*	*	*	*	*	*	*	*	34	23
P F		CONNECTOR ASSEMBLY: cross, outside w/long terminals 4994061 (30612)		EA	1	*	*	*	*	*	*	*	*	34	24
P F	5305-543-4662	SCREW, MACHINE: brush holder mounting MS35265-61 (96906)		EA	12	*	*	*	*	*	*	*	*	34	25
P F	5310-014-5850	WASHER, FLAT: No. 10, holder mounting MS27183-42 (96906)		EA	20	*	*	*	*	*	*	*	*	34	26
P2 F		HOLDER ASSEMBLY: brush, w/springs 53-620-284-501 (88310)		EA	4	*	*	*	*	*	*	*	*	34	27
P F	2920-725-3461	SPRING, SPIRAL TORSION: brush 4994072 (30612)		EA	8	*	*	*	*	*	*	*	*	34	28
P F	5977-935-6945	BRUSH ASSEMBLY: pump motor 53-620-018-502 (88310)		EA	4	*	*	*	*	*	*	*	*	34	29
X 1		SHOE: pole 53-612-186 (88310)		EA	4									34	30
P F	5305-614-0245	SCREW, MACHINE: brush plate MS35265-64 (96906)		EA	4	*	*	*	*	*	*	*	*	34	31
P F	5310-045-3296	WASHER, LOCK: brush plate MS35338-43 (96906)		EA	4	*	*	*	*	*	*	*	*	34	32
P F	5305-269-2807	SCREW, CAP, HEXAGON HEAD: 3/8-24x1-1/2, pump motor bracket to frame MS90726-64 (96906)		EA	4	*	*	*	*	*	*	*	*	34	33
P2 F		BRACKET: rear 4997866 (30612)		EA	1	*	*	*	*	*	*	*	*	34	34
		GROUP 35 - SPEED CONTROL ASSEMBLY													
P F	5305-958-5253	SCREW, MACHINE: standoff mounting MS35190-306 (96906)		EA	2	*	*	*	*	*	*	*	*	35	1
P F	5310-194-9212	WASHER, LOCK: standoff mounting MS35336-33 (96906)		EA	2	*	*	*	*	*	*	*	*	35	2
P F	5305-958-5247	SCREW, MACHINE: shaft bracket mounting MS35190-291 (96906)		EA	2	*	*	*	*	*	*	*	*	35	3
P F	5310-582-5965	WASHER, LOCK: shaft bracket mounting MS35338-44 (96906)		EA	2	*	*	*	*	*	*	*	*	35	4
P F	5310-761-6882	NUT, PLAIN HEXAGON: shaft bracket mounting MS51967-2 (96906)		EA	2	*	*	*	*	*	*	*	*	35	5
P2 F		SPACER, SLEEVE: standoff 4768091 (30612)		EA	2	*	*	*	*	*	*	*	*	35	6
P O		GASKET: box cover 4805781 (30612)		EA	1	*	*	*	*	*	*	*	*	35	7
P2 O		COVER: speed control box 4804451 (30612)		EA	1	*	*	*	*	*	*	*	*	35	8
P O	5310-584-7889	WASHER, LOCK: cover mounting MS35338-53 (96906)		EA	4	*	*	*	*	*	*	*	*	35	9
P O	5305-068-0500	SCREW, CAP, HEXAGON HEAD: cover mounting MS90725-3 (96906)		EA	2	*	*	*	*	*	*	*	*	35	10

(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REF NUMBER & MFR CODE	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1-YR ALW PER 100 EQUIP CNTGY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATION (a) FIG. NO.	(b) ITEM NO.
	BOX ASSEMBLY: speed control 4827598 (30612)		EA	1	*	*	*	*	*	*	*	*	35	-
	BOX: speed control 4804453 (30612)		EA	1									35	11
-934-9747	NUT, PLAIN HEXAGON: switch mounting MS35649-262 (96906)		EA	2	*	*	*	*	*	*	*	*	35	12
-045-4007	WASHER, LOCK: switch mounting MS35338-41 (96906)		EA	2	*	*	*	*	*	*	*	*	35	13
-082-1404	WASHER, FLAT: switch mounting MS27183-6 (96906)		EA	2	*	*	*	*	*	*	*	*	35	14
	SCREW, MACHINE: shaft spring mounting MS51959-105 (96906)		EA	1	*	*	*	*	*	*	*	*	35	15
	BRACKET: bearing, control rod AL4174 (87946)		EA	1	*	*	*	*	*	*	*	*	35	16
	SHAFT: speed control 4827599 (30612)		EA	1	*	*	*	*	*	*	*	*	35	17
	BEARING: accelerator pedal 468 (73134)		EA	1	*	*	*	*	*	*	*	*	35	18
-269-3212	SCREW, CAP, HEXAGON HEAD: pedal bearing mounting MS90725-61 (96906)		EA	1	*	*	*	*	*	*	*	*	35	19
-637-9541	WASHER, LOCK: bearing mounting MS35338-46 (96906)		EA	1	*	*	*	*	*	*	*	*	35	20
-851-2674	NUT, PLAIN HEXAGON: bearing mounting MS35691-1 (96906)		EA	1	*	*	*	*	*	*	*	*	35	21
-059-3657	SCREW, MACHINE: flange mounting MS51958-61 (96906)		EA	4	*	*	*	*	*	*	*	*	35	22
-880-7744	NUT, PLAIN HEXAGON: spring mounting MS51967-5 (96906)		EA	2	*	*	*	*	*	*	*	*	35	23
-733-4609	SWITCH, PUSH: speed control 4799828 (30612)		EA	1	*	*	*	*	*	*	*	*	35	24
-054-6660	SCREW, MACHINE: switch mounting MS51957-36 (96906)		EA	1	*	*	*	*	*	*	*	*	35	25
	PIN, STRAIGHT, HEADLESS: 5/16x1-1/4, grooved, speed control arm 925168 (30612)		EA	2									35	26
	ARM: speed control 4805780 (30612)		EA	1	*	*	*	*	*	*	*	*	35	27
-133-6791	BEARING: flange FMN8 (87946)		EA	2	*	*	*	*	*	*	*	*	35	28
-045-4007	WASHER, LOCK: bearing mounting MS35338-41 (96906)		EA	4	*	*	*	*	*	*	*	*	35	29
-934-9751	NUT, PLAIN HEXAGON: bearing mounting MS35650-302 (96906)		EA	4	*	*	*	*	*	*	*	*	35	30
-844-3965	PIN, SPRING: 3/16x3/4, arm mounting MS16562-48 (96906)		EA	1	*	*	*	*	*	*	*	*	35	31
	HARNESS: electrical wire 4827801 (30612)		EA	1	*	*	*	*	*	*	*	*	35	32

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REF NUMBER & MFR CODE / USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1-YR ALW PER 100 EQUIP CNTGY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATION (a) FIG. NO.	(b) ITEM NO.
P F		CONNECTOR: electrical 4805457 (30612)	EA	1	*	*	*	*	*	*	*	*	35	33
P F	5305-890-3378	SETSCREW: collar mounting MS18064-14 (96906)	EA	1	*	*	*	*	*	*	*	*	35	34
P F		COLLAR: shaft 4760861 (30612)	EA	1	*	*	*	*	*	*	*	*	35	35
P F		SPRING, HELICAL, TORSION: shaft 4806104 (30612)	EA	1	*	*	*	*	*	*	*	*	35	36
P F	5310-851-2674	NUT, PLAIN HEXAGON: actuator mounting MS35691-1 (96906)	EA	1	*	*	*	*	*	*	*	*	35	37
P F	5305-926-5666	SETSCREW: actuator mounting MS18067-37 (96906)	EA	1	*	*	*	*	*	*	*	*	35	38
P F		ACTUATOR: speed control switch 4804456 (30612)	EA	1	*	*	*	*	*	*	*	*	35	39
P F		SPACER, SLEEVE: switch 4799824 (30612)	EA	1	*	*	*	*	*	*	*	*	35	40
P F	5340-270-8553	PLUG: button SS48172 (90763)	EA	2	*	*	*	*	*	*	*	*	35	41
P F		POTENTIOMETER: 50K ohm, speed control assembly 4805787 J (71590)	EA	1	*	*	*	*	*	*	*	*	35	42
P F	5310-809-3078	WASHER, FLAT: spring mounting screw MS27183-11 (96906)	EA	1	*	*	*	*	*	*	*	*	35	43
P F	5310-080-6004	WASHER, FLAT: potentiometer mounting MS27183-14 (96906)	EA	1	*	*	*	*	*	*	*	*	35	44
		GROUP 36 FORWARD AND REVERSE SWITCH ASSEMBLY												
P F		SWITCH ASSEMBLY: forward and reverse 18-386-833-401 (92392) 4805512	EA	1	*	*	*	*	*	*	*	*	36	-
P F		STUD, STRAIGHT: 1/4-20 14-135-915-002 (92392)	EA	3	*	*	*	*	*	*	*	*	36	1
P F		SHAFT: switch 14-225-517-002 (92392)	EA	1	*	*	*	*	*	*	*	*	36	2
P F		PLATE ASSEMBLY: front end 14-146-353-501 (92392)	EA	1	*	*	*	*	*	*	*	*	36	3
P F		PIN, STRAIGHT HEADLESS: front bushing 00-671-177-313 (92392)	EA	1	*	*	*	*	*	*	*	*	36	4
P F		BUSHING: front 14-103-705-011 (92392)	EA	1	*	*	*	*	*	*	*	*	36	5
P F		WHEEL: toothed 14-144-304-501 (92392)	EA	1	*	*	*	*	*	*	*	*	36	6
P F		BUSHING ASSEMBLY: front 14-139-503-805 (92392)	EA	1	*	*	*	*	*	*	*	*	36	7
P F		CONTACT SEGMENT: front 18-387-159-606 (92392) 18-122-913-537	EA	1	*	*	*	*	*	*	*	*	36	8
P F		BUSHING: insulating 14-125-685-005 (92392)	EA	1	*	*	*	*	*	*	*	*	36	9
P F		CONTACT SEGMENT: rear 18-387-685-607 (92392) 18-122-913-538	EA	1	*	*	*	*	*	*	*	*	36	10
P F		COVER: switch assembly 14-209-255-003 (92392)	EA	1	*	*	*	*	*	*	*	*	36	11

(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REF NUMBER & MFR CODE / USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1-YR ALW PER 100 EQUIP CNTGY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATION (a) FIG. NO.	(b) ITEM NO.
	BUSHING ASSEMBLY: rear 14-137-385-801 (92392)	EA	1	*	*	*	*	*	*	*	*	36	12
	TUBE: insulating 00-479-253-035 (92392)	EA	3	*	*	*	*	*	*	*	*	36	13
	WASHER, FLAT: brass 14-101-714-020 (92392)	EA	1	*	*	*	*	*	*	*	*	36	14
	BUSHING: rear 14-137-352-001 (92392)	EA	1	*	*	*	*	*	*	*	*	36	15
	WASHER, FLAT: 1/4, brass, shaft 00-651-027-139 (92392)	EA	1	*	*	*	*	*	*	*	*	36	16
	WASHER, LOCK: 1/4, shaft 00-655-017-026 (92392)	EA	4	*	*	*	*	*	*	*	*	36	17
	NUT, PLAIN HEXAGON: 1/4-20, shaft 00-631-059-104 (92392)	EA	3	*	*	*	*	*	*	*	*	36	18
	NUT, BLIND RIVET: rear plate 00-639-071-701 (92392)	EA	1	*	*	*	*	*	*	*	*	36	19
	PLATE: rear end 14-230-091-001 (92392)	EA	1	*	*	*	*	*	*	*	*	36	20
	WASHER, FLAT: top rear 14-110-748-028 (92392)	EA	1	*	*	*	*	*	*	*	*	36	21
	PLATE: insulating 14-107-608-001 (92392)	EA	1	*	*	*	*	*	*	*	*	36	22
	FINGER ASSEMBLY: contact 14-137-585-501 (92392) (Component of PARTS KIT-14-318-773-501)	EA	4									36	23
	RIVET: contact assembly 14-137-569-001 (92392) (Component of PARTS KIT-14-318-773-501)	EA	4									36	24
	SPRING, HELICAL COMPRESSION: contact assembly 14-154-879-011 (92392) (Component of PARTS KIT-14-318-773-501)	EA	4									36	25
	SUPPORT: contact 14-175-992-001 (92392) (Component of PARTS KIT-14-318-773-501)	EA	4									36	26
	FINGER: contact 14-175-993-001 (92392) (Component of PARTS KIT-14-318-773-501)	EA	4									36	27
	STRIP: contact 14-103-704-001 (92392) (Component of PARTS KIT-14-318-773-501)	EA	8									36	28
	WASHER, FLAT: no. 10, rivet 00-651-021-035 (92392) (Component of PARTS KIT-14-318-773-501)	EA	4									36	29
	BLOCK: base, rear 14-205-351-001 (92392)	EA	2	*	*	*	*	*	*	*	*	36	30
	WASHER, FLAT: No. 10 brass, terminal post 00-651-027-087 (92392)	EA	8	*	*	*	*	*	*	*	*	36	31
5945-3296	WASHER, LOCK: No. 10, steel, terminal post MS35338-43 (96906)	EA	8	*	*	*	*	*	*	*	*	36	32
	NUT, PLAIN HEXAGON: No. 10-32, brass, terminal post 00-631-123-210 (92392)	EA	8	*	*	*	*	*	*	*	*	36	33
	BAR: shorting 18-158-543-001 (92392)	EA	1	*	*	*	*	*	*	*	*	36	34

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REF NUMBER & MFR CODE	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1-YR ALW PER 100 EQUIP CNTGY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATION (a) FIG. NO.	(b) ITEM NO.
P F		BLOCK: base, front 14-144-224-002 (92392)		EA	1	*	*	*	*	*	*	*	*	36	35
P F		ARM: roller 14-143-960-001 (92392)		EA	2	*	*	*	*	*	*	*	*	36	36
P F		SPRING, HELICAL EXTENSION: roller arm 14-175-226-001 (92392)		EA	2	*	*	*	*	*	*	*	*	36	37
P F		INSULATION: shaft 14-137-226-002 (92392)		EA	1	*	*	*	*	*	*	*	*	36	38
P P		SCREW: special, terminal post 14-103-701-001 (92392)		EA	4	*	*	*	*	*	*	*	*	36	39
		GROUP 37 - POWER SWITCH ASSEMBLY													
P2 FR	5930-499-1886	SWITCH ASSEMBLY: power 4809760 (30612)		EA	1	*	*	*	*	*	*	*	*	37	-
P F		MODULE ASSEMBLY: power switch 4999800 (30612)		EA	8	*	*	*	*	*	*	*	*	37	1
P F		RESISTOR: 0.036 ohm 4999804 (30612)		EA	16	*	*	*	*	*	*	*	*	37	2
P F	5305-889-3001	SCREW, MACHINE: resistor to switch module MS35206-231 (96906)		EA	8	*	*	*	*	*	*	*	*	37	3
P F	5310-579-0079	WASHER, LOCK: resistor to switch module MS35333-37 (96906)		EA	24	*	*	*	*	*	*	*	*	37	4
P F	5310-014-5850	WASHER, FLAT: resistor to switch module MS27183-42 (96906)		EA	24	*	*	*	*	*	*	*	*	37	5
P F	5305-514-7506	SCREW, MACHINE: resistor to switch module MS35265-26 (96906)		EA	16	*	*	*	*	*	*	*	*	37	6
P2 F		PLATE: end 4996828 (30612)		EA	2	*	*	*	*	*	*	*	*	37	7
P F	5305-959-2722	SCREW, MACHINE: spacer mounting MS35190-308 (96906)		EA	4	*	*	*	*	*	*	*	*	37	8
P F	5310-407-9566	WASHER, LOCK: spacer mounting MS35338-45 (96906)		EA	4	*	*	*	*	*	*	*	*	37	9
P2 F		SPACER: power switch 4791544 (30612)		EA	2	*	*	*	*	*	*	*	*	37	10
P F	5310-880-7744	NUT, PLAIN HEXAGON: spacer mounting MS51967-5 (96906)		EA	4	*	*	*	*	*	*	*	*	37	11
P2 F		SPACER: mounting rod 4999802 (30612)		EA	2	*	*	*	*	*	*	*	*	37	12
P2 F		ROD: mounting 4999801 (30612)		EA	2	*	*	*	*	*	*	*	*	37	13
P2 F		SPACER: mounting rod 4999803 (30612)		EA	16	*	*	*	*	*	*	*	*	37	14
P F	5310-595-7237	WASHER, LOCK: mounting rod MS35333-42 (96906)		EA	4	*	*	*	*	*	*	*	*	37	15
P F	5310-732-0558	NUT, PLAIN HEXAGON: mounting rod MS51967-8 (96906)		EA	4	*	*	*	*	*	*	*	*	37	16
P F	5305-990-6444	SCREW, MACHINE: busbar mounting MS35207-261 (96906)		EA	8	*	*	*	*	*	*	*	*	37	17

(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REF NUMBER & MFR CODE	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1-YR ALW PER 100 EQUIP CNTGY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATION (a) FIG. NO.	(b) ITEM NO.
	BUSBAR: lower 4997886 (30612)		EA	1	*	*	*	*	*	*	*	*	37	18
	INSULATOR: busbar 4996834 (30612)		EA	4	*	*	*	*	*	*	*	*	37	19
	LEAD, ELECTRICAL: flexible 4999807 (30612)		EA	14	*	*	*	*	*	*	*	*	37	20
	SPACER: .module mounting 4999813 (30612)		EA	2	*	*	*	*	*	*	*	*	37	21
	LEAD, ELECTRICAL: flexible 4999157 (30612)		EA	3	*	*	*	*	*	*	*	*	37	22
-576-5752	WASHER, LOCK: busbar MS35333-39 (96906)		EA	12	*	*	*	*	*	*	*	*	37	23
	BUSHING: insulator 4999812 (30612)		EA	4	*	*	*	*	*	*	*	*	37	24
-014-5850	WASHER, FLAT: busbar MS27183-42 (96906)		EA	16	*	*	*	*	*	*	*	*	37	25
	WASHER, FLAT: nylon 4999811 (30612)		EA	4	*	*	*	*	*	*	*	*	37	26
-934-9751	NUT, PLAIN HEXAGON: busbar MS35650-302 (96906)		EA	4	*	*	*	*	*	*	*	*	37	27
	LEAD, ELECTRICAL: flexible 4999159 (30612)		EA	1	*	*	*	*	*	*	*	*	37	28
	BLOCK: diode 4996835 (30612)		EA	1	*	*	*	*	*	*	*	*	37	29
-889-3001	SCREW, MACHINE: diode block mounting MS35206-231 (96906)		EA	2	*	*	*	*	*	*	*	*	37	30
-209-5116	WASHER, LOCK: diode blade mounting MS35333-37 (96906)		EA	1	*	*	*	*	*	*	*	*	37	31
-983-8483	WASHER, FLAT: diode block mounting MS27183-5 (96906)		EA	1	*	*	*	*	*	*	*	*	37	32
	LEAD, ELECTRICAL: flexible 4999158 (30612)		EA	2	*	*	*	*	*	*	*	*	37	33
-934-9747	NUT, PLAIN HEXAGON: fuse block mounting MS35649-262 (96906)		EA	1	*	*	*	*	*	*	*	*	37	34
-550-3714	WASHER, LOCK: fuse block mounting MS35335-30 (96906)		EA	1	*	*	*	*	*	*	*	*	37	35
	TERMINAL: electrical 4999805 (30612)		EA	1	*	*	*	*	*	*	*	*	37	36
	BLOCK: fuse 2917 (71400)		EA	1	*	*	*	*	*	*	*	*	37	37
-443-4079	FUSE, CARTRIDGE: 10 amp. SC10 (71400)		EA	1	*	*	*	*	*	*	*	*	37	38
	FUSE, CARTRIDGE: 5 amp. SC5 (71400)		EA	1	*	*	*	*	*	*	*	*	37	39
	BUSBAR: upper 4997883 (30612)		EA	1	*	*	*	*	*	*	*	*	37	40
-993-1851	SCREW, MACHINE: No. 10-32x1, busbar mounting MS35207-267 (96906)		EA	4	*	*	*	*	*	*	*	*	37	41
	LEAD ELECTRICAL 4999806 (30612)		EA	7	*	*	*	*	*	*	*	*	37	42

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REF NUMBER & MFR CODE / USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1-YR ALW PER 100 EQUIP CNTGY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATION (a) FIG NO.	(b) ITEM NO.
		GROUP 38 - POWER SWITCH MODULE												
P F		MODULE: power switch 4999800 (30612)	EA	8	*	*	*	*	*	*	*	*	38	-
P2 F		SINK: heat, transister 4997929 (30612)	EA	16	*	*	*	*	*	*	*	*	38	1
P F		RESISTOR: 22 ohm, 2 watt HB2201 (01121)	EA	16	*	*	*	*	*	*	*	*	38	2
P F	5905-068-4448	RESISTOR: 220 ohm, 1/2 watt EP2211 (01121)	EA	16	*	*	*	*	*	*	*	*	38	3
P F		PRINTED CIRCUIT BOARD: power switch module 4812377 (30612)	EA	8	*	*	*	*	*	*	*	*	38	4
P F		WASHER, FLAT: brass 926321 (30612)	EA	48	*	*	*	*	*	*	*	*	38	5
P F		WASHER, LOCK: circuit board MS35333-37 (96906)	EA	48	*	*	*	*	*	*	*	*	38	6
P F	5310-934-9747	NUT, PLAIN HEXAGON: circuit board MS35649-262 (96906)	EA	48	*	*	*	*	*	*	*	*	38	7
P F		WASHER, FLAT: No. 10, brass 926325 (30612)	EA	16	*	*	*	*	*	*	*	*	38	8
P F	5310-576-5752	WASHER, LOCK: transister mounting MS35333-39 (96906)	EA	16	*	*	*	*	*	*	*	*	38	9
P F		NUT, PLAIN HEXAGON: No. 10-32, transistor mounting MS35650-302 (96906)	EA	16	*	*	*	*	*	*	*	*	38	10
P2 F		SPACER: transistor 4998067 (30612)	EA	16	*	*	*	*	*	*	*	*	38	11
P F		LEAD, ELECTRICAL: flexible 4998172 (30612)	EA	16	*	*	*	*	*	*	*	*	38	12
P F		TRANSISTOR: power switch module SP1358 (81223)	EA	16	*	*	*	*	*	*	*	*	38	13
P F		SCREW, MACHINE: No. 6-32x3/8 MS35190-236 (96906)	EA	16	*	*	*	*	*	*	*	*	38	14
P F		RESISTOR: 22 ohm, 2 watt MRC3-5-13-1PCB (82807) 4812376	EA	16	*	*	*	*	*	*	*	*	38	15
P2 F		SINK: heat, transistor 4812373 (30612)	EA	8	*	*	*	*	*	*	*	*	38	16
P F		TRANSISTOR: power switch module SP2155 (81223) 4999774	EA	16	*	*	*	*	*	*	*	*	38	17
P F		SCREW, MACHINE: No. 6-32x1/2 transistor mounting MS35206-230 (96906)	EA	32	*	*	*	*	*	*	*	*	38	18
P F		RESISTOR: 100 ohm, 1/2 watt EB1011 (01121)	EA	2	*	*	*	*	*	*	*	*	38	19

(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REF NUMBER & MFR CODE	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1-YR ALW PER 100 EQUIP CNTGY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATION (a) FIG. NO.	(b) ITEM NO.
	GROUP 39 - CONTACTOR BOX ASSEMBLY													
	CONTACTOR ASSEMBLY: electrical 4827614 (30612)		EA	1	*	*	*	*	*	*	*	*	39	-
	HARNESS: wiring 4827615 (30612)		EA	1	*	*	*	*	*	*	*	*	39	1
-889-3001	SCREW, MACHINE: rectifier mounting MS35206-231 (96906)		EA	1	*	*	*	*	*	*	*	*	39	2
	WASHER, LOCK: No. 6, rectifier mounting MS35333-37 (96906)		EA	8	*	*	*	*	*	*	*	*	39	3
	WASHER, FLAT: No. 6, rectifier mounting 926321 (30612)		EA	3	*	*	*	*	*	*	*	*	39	4
	RECTIFIER: diode bridge 1511-10 (71279)		EA	1	*	*	*	*	*	*	*	*	39	5
	BLOCK: terminal 4812712 (30612)		EA	2	*	*	*	*	*	*	*	*	39	6
	SCREW, MACHINE: No. 6-32x1/2, device mounting MS35206-230 (96906)		EA	8	*	*	*	*	*	*	*	*	39	7
	RELAY ASSEMBLY: contactor 4999833 (30612)		EA	1	*	*	*	*	*	*	*	*	39	8
	WASHER, LOCK: No. 8, resistor mounting MS35338-42 (96906)		EA	2	*	*	*	*	*	*	*	*	39	9
-984-6191	SCREW, MACHINE: resistor mounting MS35206-243 (96906)		EA	2	*	*	*	*	*	*	*	*	39	10
-934-9747	NUT, PLAIN HEXAGON: fuse block mounting MS35649-262 (96906)		EA	3	*	*	*	*	*	*	*	*	39	11
-993-1848	SCREW, MACHINE: contactor mounting MS35207-265 (96906)		EA	8	*	*	*	*	*	*	*	*	39	12
-576-5752	WASHER, LOCK: contactor mounting MS35333-39 (96906)		EA	14	*	*	*	*	*	*	*	*	39	13
-809-8546	WASHER, FLAT: contactor mounting MS27183-8 (96906)		EA	14	*	*	*	*	*	*	*	*	39	14
-194-9211	WASHER, LOCK: insulator mounting MS35336-27 (96906)		EA	2	*	*	*	*	*	*	*	*	39	15
-957-6649	SCREW, MACHINE: insulator mounting MS35190-285 (96906)		EA	2	*	*	*	*	*	*	*	*	39	16
	BLOCK: fuse 2965 (71400)		EA	1	*	*	*	*	*	*	*	*	39	17
	FUSE, CARTRIDGE: 5 amp SC5 (71400)		EA	1	*	*	*	*	*	*	*	*	39	18
-437-8450	FUSE, CARTRIDGE: 15 amp SC15 (71400)		EA	2	*	*	*	*	*	*	*	*	39	19
	INSULATOR: fuse 4790212 (30612)		EA	2	*	*	*	*	*	*	*	*	39	20
-809-4058	WASHER, FLAT: fuse mounting MS27183-10 (96906)		EA	16	*	*	*	*	*	*	*	*	39	21
-952-4080	FUSE, CARTRIDGE: 250 amp ACK250 (71400)		EA	1	*	*	*	*	*	*	*	*	39	22

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REF NUMBER & MFR CODE	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1-YR ALW PER 100 EQUIP CNTGY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATION (a) FIG. NO.	(b) ITEM NO
P F		CABLE ASSEMBLY: fuse to ground 4822169 (30612)		EA	1	*	*	*	*	*	*	*	*	39	23
P F	5310-014-5850	WASHER, FLAT: cable mounting MS27183-42 (96906)		EA	5	*	*	*	*	*	*	*	*	39	24
P F	5310-407-9566	WASHER, LOCK: cable mounting MS35338-45 (96906)		EA	5	*	*	*	*	*	*	*	*	39	25
P F	5305-225-8496	SCREW, CAP, HEXAGON HEAD: cable mounting MS90725-31 (96906)		EA	5	*	*	*	*	*	*	*	*	39	26
P F		CONTACTOR ASSEMBLY: emergency cutout switch 4999406 (30612)		EA	1	*	*	*	*	*	*	*	*	39	27
P F		SCREW, CAP, HEXAGON HEAD: cable to busbar 926301 (30612)		EA	11	*	*	*	*	*	*	*	*	39	28
P F		CONTACTOR ASSEMBLY: forward and reverse switches 4998095 (30612)		EA	1	*	*	*	*	*	*	*	*	39	29
P F	5310-809-8544	WASHER, FLAT: terminal to contactor 926322 (30612)		EA	9	*	*	*	*	*	*	*	*	39	30
P F		SCREW, MACHINE: terminal to contactor 926312 (30612)		EA	8	*	*	*	*	*	*	*	*	39	31
P F		CONTACTOR ASSEMBLY: pump switch 4996839 (30612)		EA	1	*	*	*	*	*	*	*	*	39	32
P F		SHEET: contactor insulator 4996850 (30612)		EA	2	*	*	*	*	*	*	*	*	39	33
P F		SCREW, MACHINE: No. 6-32x5/16, diode connector tab mounting 926311 (30612)		EA	1	*	*	*	*	*	*	*	*	39	34
P F		TAB: electrical connector 4999769 (30612)		EA	1	*	*	*	*	*	*	*	*	39	35
P F		DIODE: contactor box assembly IN1184 (01364)		EA	1	*	*	*	*	*	*	*	*	39	36
P F		BRACKET: diode mounting 4999767 (30612)		EA	1	*	*	*	*	*	*	*	*	39	37
P F	5310-851-2674	NUT, PLAIN HEXAGON: diode mounting MS35691-1 (96906)		EA	1	*	*	*	*	*	*	*	*	39	38
P F	5310-550-1130	WASHER, LOCK: diode mounting MS35323-40 (96906)		EA	1	*	*	*	*	*	*	*	*	39	39
P F		RESISTOR: 10 ohm, 100 watt 12M59-10H (82807) 4999766		EA	1	*	*	*	*	*	*	*	*	39	40
P F	5310-765-3197	WASHER, FLAT: resistor mounting MS27183-41 (96906)		EA	2	*	*	*	*	*	*	*	*	39	41
P F		NUT, PLAIN HEXAGON: No. 8-32, resistor mounting MS35649-282 (96906)		EA	2	*	*	*	*	*	*	*	*	39	42
P F	5310-167-0721	WASHER, LOCK: bracket mounting MS35333-41 (96906)		EA	1	*	*	*	*	*	*	*	*	39	43
P F		SCREW, MACHINE: No. 8-32x3/8, bracket mounting 926334 (30612)		EA	1	*	*	*	*	*	*	*	*	39	44
P F		BUSBAR: contactor assembly 4812542 (30612)		EA	1	*	*	*	*	*	*	*	*	39	45
P F		SCREW, CAP, HEXAGON HEAD: 1/4-20x1/2, busbar assembly 926302 (30612)		EA	2	*	*	*	*	*	*	*	*	39	46

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	SHEET: contactor insulator 4997939 (30612)	EA	2	*	*	*	*	*	*	*	*	39	47
	BUSBAR: fuse to contactor assembly 4999881 (30612)	EA	1	*	*	*	*	*	*	*	*	39	48
	BOX: contactor assembly 4812324 (30612)	EA	1									39	49
	SCREW, MACHINE: 3/8-16 x 1-1/4, contactor MS35190-320 (96906)	EA	2	*	*	*	*	*	*	*	*	39	50
5310-637-9541	WASHER, LOCK: contactor MS35338-46 (96906)	EA	2	*	*	*	*	*	*	*	*	39	51
5310-732-0558	NUT, PLAIN, HEXAGON: contactor MS51967-8 (96906)	EA	2	*	*	*	*	*	*	*	*	39	52
	GROUP 40 FORWARD AND REVERSE CONTACTOR ASSEMBLY												
	CONTACTOR ASSEMBLY: 100 amp 4998095 (30612)	EA	1	*	*	*	*	*	*	*	*	40	-
	CONTACTOR: electrical 4994393 (30612)	EA	2	*	*	*	*	*	*	*	*	40	-
	SCREW, MACHINE: No. 10-32x3/8, lead to carrier 926718 (30612)	EA	2	*	*	*	*	*	*	*	*	40	1
	WASHER: cup 4994409 (30612)	EA	2	*	*	*	*	*	*	*	*	40	2
	SPRING, HELICAL COMPRESSION: contact 4994404 (30612)	EA	2	*	*	*	*	*	*	*	*	40	3
	PIN, COTTER: 1/16x1/2, shoulder pin MS24665-132 (96906)	EA	2	*	*	*	*	*	*	*	*	40	4
	CARRIER: contact 4994400 (30612)	EA	2	*	*	*	*	*	*	*	*	40	5
	NUT, PLAIN HEXAGON: contact mounting 4994435 (30612)	EA	8	*	*	*	*	*	*	*	*	40	6
5310-809-8546	WASHER, FLAT: contact mounting MS27183-8 (96906)	EA	8	*	*	*	*	*	*	*	*	40	7
5930-019-1032	CONTACT: electrical 4994406 (30612)	EA	8	*	*	*	*	*	*	*	*	40	8
	SUPPORT: stationary, contact 4994401 (30612)	EA	2	*	*	*	*	*	*	*	*	40	9
	SCREW, MACHINE: 1/4-20x1/2 support mounting 926302 (30612)	EA	4	*	*	*	*	*	*	*	*	40	10
5310-823-8804	WASHER, FLAT: support mounting MS27183-10 (96906)	EA	4	*	*	*	*	*	*	*	*	40	11
	SUPPORT: stationary, contact 4994399 (30612)	EA	2	*	*	*	*	*	*	*	*	40	12
	BLOCK: contact 4994396 (30612)	EA	2	*	*	*	*	*	*	*	*	40	13
	WASHER, LOCK: No. 10, support mounting MS35336-21 (96906)	EA	2	*	*	*	*	*	*	*	*	40	14
5305-984-7363	SCREW, MACHINE: support mounting MS35191-272 (96906)	EA	2	*	*	*	*	*	*	*	*	40	15

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REF NUMBER & MFR CODE / USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1-YR ALW PER 100 EQUIP CNTGY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATION (a) FIG. NO.	(b) ITEM NO.
P F		YOKE: magnet 4994394 (30612)	EA	2	*	*	*	*	*	*	*	*	40	16
P F		LEAD, ELECTRICAL: contact 4994407 (30612)	EA	2	*	*	*	*	*	*	*	*	40	17
P F		SCREW, CAP, HEXAGON HEAD: No. 10-32x1/2, switch support mounting 922705 (30612)	EA	4	*	*	*	*	*	*	*	*	40	18
P F		SUPPORT: switch 4994408 (30612)	EA	2	*	*	*	*	*	*	*	*	40	19
P F	5930-723-5363	SWITCH: limit 3MNGTCDB (91929)	EA	4	*	*	*	*	*	*	*	*	40	20
P F	5305-579-2139	SCREW, MACHINE: switch mounting MS35265-30 (96906)	EA	4	*	*	*	*	*	*	*	*	40	21
P F		ARMATURE: contactor 4994398 (30612)	EA	2	*	*	*	*	*	*	*	*	40	22
P F		BEARING: pivot 4994403 (30612)	EA	2	*	*	*	*	*	*	*	*	40	23
P F		PIN: shoulder 14-172-212 (92392)	EA	2	*	*	*	*	*	*	*	*	40	24
P F		SPRING, HELICAL COMPRESSION: contactor return 4994405 (30612)	EA	2	*	*	*	*	*	*	*	*	40	25
P F	5305-995-3442	SCREW, MACHINE: magnet coil assembly MS35207-268 (96906)	EA	2	*	*	*	*	*	*	*	*	40	26
P F		WASHER, LOCK: No. 10, coil assembly 917365 (96906)	EA	2	*	*	*	*	*	*	*	*	40	27
P F		CORE: magnet 14-171-287 (92392)	EA	2	*	*	*	*	*	*	*	*	40	28
P F	5310-045-4007	WASHER, LOCK: switch mounting MS35338-41 (96906)	EA	4	*	*	*	*	*	*	*	*	40	29
P F	5310-582-5965	WASHER, LOCK: support mounting MS35338-44 (96906)	EA	4	*	*	*	*	*	*	*	*	40	30
P F	5310-596-7691	WASHER, LOCK: support mounting MS35335-32 (96906)	EA	4	*	*	*	*	*	*	*	*	40	31
P F		BAR: bus 4994427 (30612)	EA	1	*	*	*	*	*	*	*	*	40	32
P F	5310-809-4058	WASHER, FLAT: busbar mounting MS27183-10 (96906)	EA	4	*	*	*	*	*	*	*	*	40	33
P F		SCREW, MACHINE: 1/4-20x3/8, with internal lockwasher, busbar mounting 926301 (30612)	EA	4	*	*	*	*	*	*	*	*	40	34

(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REF NUMBER & MFR CODE / USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1-YR ALW PER 100 EQUIP CNTGY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATION (a) FIG. NO.	(b) ITEM NO.
	GROUP 41 - PUMP CONTACTOR ASSEMBLY												
	CONTACTOR ASSEMBLY: pump, 200 amp 4996839 (30612)	EA	1	*	*	*	*	*	*	*	*	41	-
	LEAD ELECTRICAL - contactor 4996959 (30612)	EA	1	*	*	*	*	*	*	*	*	41	1
5305-068-0498	SCREW, MACHINE: carrier assembly MS90725-1 (96906)	EA	1	*	*	*	*	*	*	*	*	41	2
	WASHER: centering, spring pin 4905183 (30612)	EA	1	*	*	*	*	*	*	*	*	41	3
	WASHER: cup, spring pin 14-102-618-011 (92392)	EA	1	*	*	*	*	*	*	*	*	41	4
	SPRING, HELICAL COMPRESSION: contact 4994839 (30612)	EA	1	*	*	*	*	*	*	*	*	41	5
	CARRIER: movable 4996951 (30612)	EA	1	*	*	*	*	*	*	*	*	41	6
	SCREW, CAP, HEXAGON HEAD: 1/4-28x1/4, plated, contact mounting 923498 (30612)	EA	2	*	*	*	*	*	*	*	*	41	7
	WASHER, LOCK: 1/4, plated, contactor mounting 909367 (30612)	EA	2	*	*	*	*	*	*	*	*	41	8
5930-019-1039	CONTACT: electrical 4996955 (30612)	EA	2	*	*	*	*	*	*	*	*	41	9
	BRACKET: armature stop 14-177-808 (92392)	EA	1									41	10
5310-823-8804	WASHER, FLAT: bracket mounting MS27183-10 (96906)	EA	2	*	*	*	*	*	*	*	*	41	11
5305-068-0500	SCREW, CAP, HEXAGON HEAD: bracket mounting MS90725-3 (96906)	EA	2	*	*	*	*	*	*	*	*	41	12
	SUPPORT: stationary contact 4996950 (30612)	EA	1	*	*	*	*	*	*	*	*	41	13
	BLOCK: stationary contact 4994396 (30612)	EA	1	*	*	*	*	*	*	*	*	41	14
	YOKE: magnet 4996820 (30612)	EA	1	*	*	*	*	*	*	*	*	41	15
5310-194-9209	WASHER, LOCK: block mounting MS35336-21 (96906)	EA	1	*	*	*	*	*	*	*	*	41	16
5305-984-7363	SCREW, MACHINE: block mounting MS35191-272 (96906)	EA	1	*	*	*	*	*	*	*	*	41	17
	WASHER: belleville, retainer mounting 4905182 (30612)	EA	2	*	*	*	*	*	*	*	*	41	18
	SCREW, CAP, HEXAGON HEAD: No. 10-32x1/2, retainer mounting 922705 (30612)	EA	2	*	*	*	*	*	*	*	*	41	19
	RETAINER: armature 14-177-651 (92392)	EA	1									41	20
	BEARING: pivot 4996954 (30612)	EA	1	*	*	*	*	*	*	*	*	41	21
	PIN: shoulder, carrier mounting 4994402 (30612)	EA	1	*	*	*	*	*	*	*	*	41	22
5315-839-2325	PIN, COTTER: shoulder pin MS24665-132 (96906)	EA	1	*	*	*	*	*	*	*	*	41	23

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REF NUMBER & MFR CODE / USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1-YR ALW PER 100 EQUIP CNTGY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATION (a) FIG NO.	(b) ITEM NO
P F		ARMATURE: contactor assembly 4998957 (30612)	EA	1	*	*	*	*	*	*	*	*	41	24
P F		SPRING, HELICAL COMPRESSION: carrier ret. 4994405 (30612)	EA	1	*	*	*	*	*	*	*	*	41	25
P F	5305-995-3441	SCREW, MACHINE: magnetic coil MS35207-269 (96906)	EA	1	*	*	*	*	*	*	*	*	41	26
P F	5310-014-5850	WASHER, FLAT: magnetic coil MS27183-42 (96906)	EA	1	*	*	*	*	*	*	*	*	41	27
P F		COIL: magnet 4996838 (30612)	EA	1	*	*	*	*	*	*	*	*	41	28
P F		CORE ASSEMBLY: magnet 4996958 (30612)	EA	1	*	*	*	*	*	*	*	*	41	29
P F		TERMINAL: cable 4996930 (30612)	EA	1	*	*	*	*	*	*	*	*	41	30
P F		WASHER, FLAT: 17/64, cable mounting 921319 (30612)	EA	1	*	*	*	*	*	*	*	*	41	31
P F	5310-582-5965	WASHER, LOCK: cable mounting MS35335-33 (96906)	EA	1	*	*	*	*	*	*	*	*	41	32
P F	5305-068-0501	SCREW, CAP, HEXAGON HEAD: cable mounting MS90725-5 (96906)	EA	1	*	*	*	*	*	*	*	*	41	33
		GROUP 42 - EMERGENCY CUTOUT ASSEMBLY												
P F		CONTACTOR ASSEMBLY: emergency cutout 4999406 (30612)	EA	1	*	*	*	*	*	*	*	*	42	-
P F		LEAD, ELECTRICAL: contactor 4996959 (30612)	EA	1	*	*	*	*	*	*	*	*	42	1
P F	5305-068-0498	SCREW, MACHINE: carrier assembly MS90725-1 (96906)	EA	1	*	*	*	*	*	*	*	*	42	2
P F		WASHER: centering, spring 4905183 (30612)	EA	1	*	*	*	*	*	*	*	*	42	3
P F		WASHER: cup, spring pin 14-102-618-011 (92392)	EA	1	*	*	*	*	*	*	*	*	42	4
P F		SPRING, HELICAL COMPRESSION: contact 4994389 (30612)	EA	1	*	*	*	*	*	*	*	*	42	5
P F		CARRIER: movable 4996951 (30612)	EA	1	*	*	*	*	*	*	*	*	42	6
P F		SCREW, CAP, HEXAGON HEAD: 1/4-28 x 1/4, plated, contact mounting 923498 (30612)	EA	2	*	*	*	*	*	*	*	*	42	7
P F	5310-550-1130	WASHER, LOCK: contact mounting MS35333-40 (96906)	EA	2	*	*	*	*	*	*	*	*	42	8
P F	3930-019-1039	CONTACT: electrical 4996955 (30612)	EA	2	*	*	*	*	*	*	*	*	42	9
X2 F		BRACKET: armature stop 14-177-808 (92392)	EA	1									42	10
P F	5310-823-8804	WASHER, FLAT: bracket mounting MS27183-10 (96906)	EA	2	*	*	*	*	*	*	*	*	42	11
P F	5305-068-0500	SCREW, CAP, HEXAGON HEAD: bracket mounting MS90725-3 (96906)	EA	2	*	*	*	*	*	*	*	*	42	12
P F		SUPPORT: stationary contact 4996950 (30612)	EA	1	*	*	*	*	*	*	*	*	42	13

(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REF NUMBER & MFR CODE / USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1-YR ALW PER 100 EQUIP CNTGY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATION (a) FIG. NO.	(b) ITEM NO.
	BLOCK: stationary contact 4994396 (30612)	EA	1	*	*	*	*	*	*	*	*	42	14
	YOKE: magnet 4996820 (30612)	EA	1	*	*	*	*	*	*	*	*	42	15
0-194-9209	WASHER, LOCK: block mounting MS35336-21 (96906)	EA	1	*	*	*	*	*	*	*	*	42	16
5-984-7363	SCREW, MACHINE: block mounting MS35191-272 (96906)	EA	1	*	*	*	*	*	*	*	*	42	17
	WASHER: belleville, retainer mounting 4905182 (30612)	EA	2	*	*	*	*	*	*	*	*	42	18
	SCREW, CAP, HEXAGON HEAD: No. 10-32x1/2, retainer mounting 922705 (30612)	EA	2	*	*	*	*	*	*	*	*	42	19
	RETAINER: armature 14-177-651 (92392)	EA	1									42	20
	BEARING: pivot 4996954 (30612)	EA	1	*	*	*	*	*	*	*	*	42	21
	PIN: shoulder, carrier mounting 4994402 (30612)	EA	1	*	*	*	*	*	*	*	*	42	22
6-839-2325	PIN, COTTER: shoulder pin MS24665-132 (96906)	EA	1	*	*	*	*	*	*	*	*	42	23
	ARMATURE: contactor assembly 4998957 (30612)	EA	1	*	*	*	*	*	*	*	*	42	24
	SPRING, HELICAL COMPRESSION: carrier return 4994405 (30612)	EA	1	*	*	*	*	*	*	*	*	42	25
-995-3441	SCREW, MACHINE: magnetic coil MS35207-269 (96906)	EA	1	*	*	*	*	*	*	*	*	42	26
-014-5850	WASHER, FLAT: magnetic coil MS27183-42 (96906)	EA	1	*	*	*	*	*	*	*	*	42	27
	COIL: magnet 14-183-243-501 (92392)	EA	1	*	*	*	*	*	*	*	*	42	28
	CORE ASSEMBLY: magnet 14-177-807-501 (92392)	EA	1	*	*	*	*	*	*	*	*	42	29
	TERMINAL: cable 4996930 (30612)	EA	1	*	*	*	*	*	*	*	*	42	30
	WASHER, FLAT: 17/64, cable mounting 921319 (30612)	EA	1	*	*	*	*	*	*	*	*	42	31
-582-5965	WASHER, LOCK: cable mounting MS35335-33 (96906)	EA	1	*	*	*	*	*	*	*	*	42	32
-068-0501	SCREW, CAP, HEXAGON HEAD: cable mtg. MS90725-5 (96906)	EA	1	*	*	*	*	*	*	*	*	42	33
-478-6209	BOOT, DUST AND MOISTURE SEAL: emergency cutout switch 4757678 (30612)	EA	2	*	*	*	*	*	*	*	*	42	34
	SWITCH, PUSH: emergency cutout 48:5125 OT51 (92392)	EA	1	*	*	*	*	*	*	*	*	42	35
	PUSH BUTTON: emergency cutout switch 10250TA55 (01364) 48 24 175	EA	1	*	*	*	*	*	*	*	*	42	36

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REF NUMBER & MFR CODE	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1-YR ALW PER 100 EQUIP CNTGY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATION (a) FIG. NO.	(b) ITEM NO.
		GROUP 43 - CONTROL UNIT ASSEMBLY													
PF T		CONTROL UNIT ASSEMBLY: truck 4829064 (30612)		EA	1	*	*	*	*	*	*	*	*	43	-
P D		CAPACITOR: 25 mfd., 25 volts 4994965 (30612)		EA	3							*	*	43	1
P D		RESISTOR: 470 ohms, ½ watt 4994949 (30612)		EA	4							*	*	43	2
P D		RESISTOR: 100 ohms, ½ watt 4994950 (30612)		EA	5							*	*	43	3
P D		TRANSISTOR: control unit 4999884 (30612)		EA	4							*	*	43	4
P D		POTENTIOMETER: 20K ohms 4997905 (30612)		EA	1							*	*	43	5
P D		RESISTOR: 100 ohms, 2 watts 4994945 (30612)		EA	4							*	*	43	6
P D		RESISTOR: 4.7 K ohms, ½ watt 4997919 (30612)		EA	2							*	*	43	7
P D		CAPACITOR: .047 mfd., 250 volts 4825233 (30612)		EA	3							*	*	43	8
P D		CAPACITOR: 2.2 mfd., 250 volts 482537 (30612)		EA	3							*	*	43	9
P D		TRANSISTOR: control unit 4999888 (30612)		EA	2							*	*	43	10
P D		RESISTOR: 1 K ohm, ½ watt 4994943 (30612)		EA	8							*	*	43	11
P D		RESISTOR: 270 ohm, ½ watt 4997429 (30612)		EA	2							*	*	43	12
P D	5905-059-6321	RESISTOR: 2.7 K ohms, ½ watt 4999543 (30612)		EA	1							*	*	43	13
P D		DIODE: control unit 4997420 (30612)		EA	11							*	*	43	14
P D		RESISTOR: 50 ohm, 5 watt 4999898 (30612)		EA	1							*	*	43	15
P D		CAPACITOR: 1000 mfd., 25 volts 4997909 (30612)		EA	2							*	*	43	16
P D		CAPACITOR: 500 mfd., 25 volts 4997910 (30612)		EA	1							*	*	43	17
P D		RESISTOR: 2 K ohm, ½ watt 4997917 (30612)		EA	7							*	*	43	18
P D		CAPACITOR: .03 mfd., 250 volts 4900335 (30612)		EA	1							*	*	43	19
P D		RESISTOR: 7.5 ohm, 10 watt 4997899 (30612)		EA	1							*	*	43	20
P D		CAPACITOR: 0.47 mfd., 250 volts 4825235 (30612)		EA	1							*	*	43	21
P D		RESISTOR: 330 ohm, ½ watt 4997915 (30612)		EA	2							*	*	43	22
P D		RESISTOR: 8.2 K ohm, ½ watt 4825435 (30612)		EA	V							*	*	43	23
P D		RESISTOR: 9.1 K ohm, ½ watt 4825434 (30612)		EA	V							*	*	43	23
P D		RESISTOR: 10 K ohm, ½ watt 4825433 (30612)		EA	V							*	*	43	23

(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REF NUMBER & MFR CODE	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1-YR ALW PER 100 EQUIP CNTGY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATION (a) FIG. NO.	(b) ITEM NO.
	RESISTOR: 11 K ohm, ½ watt 4825432 (30612)		EA	V							*	*	43	23
	RESISTOR: 12 K ohm, ½ watt 4825431 (30612)		EA	V							*	*	43	23
	RESISTOR: 13 K ohm, ½ watt 4825430 (30612)		EA	V							*	*	43	23
	RESISTOR: 15 K ohm, ½ watt 4825429 (30612)		EA	V							*	*	43	23
	TRANSISTOR: unijunction 4997444 (30612)		EA	1							*	*	43	24
	DIODE: Zener 4999892 (30612)		EA	1							*	*	43	25
	RESISTOR: 820 ohm, ½ watt 4997452 (30612)		EA	2							*	*	43	26
	RESISTOR: 560 ohm, ½ watt 4999897 (30612)		EA	1							*	*	43	27
	PAD: transistor mounting 4829801 (30612)		EA	9							*	*	43	28
	TRANSISTOR: control unit 4999887 (30612)		EA	1							*	*	43	29
	CAPACITOR: 0.22 mfd., 250 volts 4825234 (30612)		EA	2							*	*	43	30
	RESISTOR: 68 ohm, ½ watt 4825462 (30612)		EA	V							*	*	43	31
	RESISTOR: 75 ohm, ½ watt 4825461 (30612)		EA	V							*	*	43	31
	RESISTOR: 82 ohm, ½ watt 4825460 (30612)		EA	V							*	*	43	31
	RESISTOR: 91 ohm, ½ watt 4825459 (30612)		EA	V							*	*	43	31
	RESISTOR: 100 ohm, ½ watt 4825458 (30612)		EA	V							*	*	43	31
	RESISTOR: 110 ohm, ½ watt 4825457 (30612)		EA	V							*	*	43	31
	RESISTOR: 120 ohm, ½ watt 4825456 (30612)		EA	V							*	*	43	31
	RESISTOR: 130 ohm, ½ watt 4825455 (30612)		EA	V							*	*	43	31
	RESISTOR: 150 ohm, ½ watt 4825454 (30612)		EA	V							*	*	43	31
	RESISTOR: 160 ohm, ½ watt 4825453 (30612)		EA	V							*	*	43	31
	RESISTOR: 180 ohms, ½ watt 4825452 (30612)		EA	V							*	*	43	31
	RESISTOR: 200 ohm, ½ watt 4825451 (30612)		EA	V							*	*	43	31
	RESISTOR: 220 ohm, ½ watt 4825450 (30612)		EA	V							*	*	43	31
	RESISTOR: 240 ohm, ½ watt 4825449 (30612)		EA	V							*	*	43	31
	RESISTOR: 270 ohm, ½ watt 4825448 (30612)		EA	V							*	*	43	31
	RESISTOR: 300 ohm, ½ watt 4825447 (30612)		EA	V							*	*	43	31

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REF NUMBER & MFR CODE	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1-YR ALW PER 100 EQUIP CNTGY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATION (a) FIG. NO.	(b) ITEM NO.
P D		RESISTOR: 330 ohm, ½ watt 4825446 (30612)		EA	V							*	*	43	31
P D		RESISTOR: 360 ohm, ½ watt 4825445 (30612)		EA	V							*	*	43	31
P D		RESISTOR: 390 ohm, ½ watt 4825444 (30612)		EA	V							*	*	43	31
P D		RESISTOR: 430 ohm, ½ watt 4825443 (30612)		EA	V							*	*	43	31
P D		RESISTOR: 470 ohm, ½ watt 4825442 (30612)		EA	V							*	*	43	31
P D		RESISTOR: 510 ohm, ½ watt 4825441 (30612)		EA	V							*	*	43	31
P D		RESISTOR: 560 ohm, ½ watt 4825440 (30612)		EA	V							*	*	43	31
P D		RESISTOR: 620 ohm, ½ watt 4825439 (30612)		EA	V							*	*	43	31
P D		RESISTOR: 680 ohm, ½ watt 4825438 (30612)		EA	V							*	*	43	31
P D		RESISTOR: 750 ohm, ½ watt 4825437 (30612)		EA	V							*	*	43	31
P D		RESISTOR: 820 ohm, ½ watt 4825436 (30612)		EA	V							*	*	43	31
P D		THERMISTOR: control unit 4999895 (30612)		EA	1							*	*	43	32
P D		RECTIFIER: silicon controlled 4999894 (30612)		EA	1							*	*	43	33
P D		DIODE: Zener 4999891 (30612)		EA	1							*	*	43	34
P D		DIODE: Zener 4999889 (30612)		EA	1							*	*	43	35
P D		RESISTOR: 47 ohm, ½ watt 4997438 (30612)		EA	1							*	*	43	36
P D		RESISTOR: 220 ohm, 1 watt 4997980 (30612)		EA	2							*	*	43	37
P D		TRANSISTOR: control unit 4999885 (30612)		EA	3							*	*	43	38
P D		TRANSISTOR: control unit 4999774 (30612)		EA	2							*	*	43	39
P D		RESISTOR: 47 ohm, 2 watt 4997981 (30612)		EA	1							*	*	43	40
P D		CAPACITOR: 1.0 mfd., 250 volts 4825236 (30612)		EA	1							*	*	43	41
P D		DIODE: Zener 4999890 (30612)		EA	1							*	*	43	42
P D		TRANSISTOR: control unit 4999899 (30612)		EA	1							*	*	43	43
P D	5999-138-3491	BOARD: circuit 4812331 (30612)		EA	1							*	*	43	44
P D		RESISTOR: 220 ohm, ½ watt 4997430 (30612)		EA	1							*	*	43	45
P D		POTENTIOMETER: control unit 4997908 (30612)		EA	1							*	*	43	46

(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REF NUMBER & MFR CODE / USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1-YR ALW PER 100 EQUIP CNTGY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATION (a) FIG. NO.	(b) ITEM NO.
	SINK: heat 4997982 (30612)	EA	2							*	*	43	47
	SCREW, MACHINE: No. 6-32x¼, diode mounting MS35206-230 (96906)	EA	10							*	*	43	48
	WASHER, LOCK: No. 6, diode mounting MS35333-37 (96906)	EA	10							*	*	43	49
10-983-8493	WASHER, FLAT: diode mounting MS27183-5 (96906)	EA	10							*	*	43	50
10-934-9747	NUT, PLAIN HEXAGON: diode mounting MS35649-262 (96906)	EA	10							*	*	43	51
	SINK: heat 4999893 (30612)	EA	3							*	*	43	52
	GROUP 44 - CONTROL BOARD ASSEMBLY												
	HANDLE: control board 4734284 (30612)	EA	1	*	*	*	*	*	*	*	*	44	1
05-990-6444	SCREW, MACHINE: handle mounting MS35207-261 (96906)	EA	2	*	*	*	*	*	*	*	*	44	2
10-045-3296	WASHER, LOCK: handle mounting MS35338-43 (96906)	EA	2	*	*	*	*	*	*	*	*	44	3
	NUT, PLAIN HEXAGON: No. 10-32, handle mounting MS35650-302 (96906)	EA	2	*	*	*	*	*	*	*	*	44	4
10-934-9759	NUT, PLAIN HEXAGON: control board mounting MS35649-284 (96906)	EA	13	*	*	*	*	*	*	*	*	44	5
	MOUNTING: resilient J6984-22 (76005)	EA	9	*	*	*	*	*	*	*	*	44	6
	SPACER, SLEEVE: control board 4806985 (30612)	EA	5	*	*	*	*	*	*	*	*	44	7
10-550-0286	WASHER, LOCK: control board MS35336-15 (96906)	EA	9	*	*	*	*	*	*	*	*	44	8
05-958-5473	SCREW, MACHINE: control board mounting MS35190-251 (96906)	EA	5	*	*	*	*	*	*	*	*	44	9
	SPACER, SLEEVE: plate mounting 4768091 (30612)	EA	3	*	*	*	*	*	*	*	*	44	10
10-514-6674	WASHER, LOCK: plate spacer MS35335-34 (96906)	EA	3	*	*	*	*	*	*	*	*	44	11
05-225-8494	SCREW, CAP, HEXAGON HEAD: plate spacer MS90725-29 (96906)	EA	3	*	*	*	*	*	*	*	*	44	12
	PLATE: control board mounting 4827807 (30612)	EA	1	*	*	*	*	*	*	*	*	44	13
	WASHER, FLAT: 3/16, flex mounting MS27183-41 (96906)	EA	9	*	*	*	*	*	*	*	*	44	14

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		GROUP 45 - PROTECTIVE CIRCUIT BOARD													
P FT	5999-256-5467	PROTECTIVE CIRCUIT ASSEMBLY: control board 4805122 (30612)		EA	1	*	*	*	*	*	*	*	*	45	-
P D		DIODE: protective circuit IN4002 (81223)		EA	11							*	*	45	1
P D		RESISTOR: 220 ohm, ½ watt EB2211 (01121)		EA	2							*	*	45	2
P D		DIODE: Zener IN4733 (81223)		EA	2							*	*	45	3
P D	5905-257-0926	RESISTOR: 3.3 K ohm, 1 watt GB3321 (01121)		EA	1							*	*	45	4
P D		RESISTOR: 10 K ohm, ½ watt EB1031 (01121)		EA	4							*	*	45	5
P D		DIODE: protective circuit IN270 (81223)		EA	3							*	*	45	6
P D		RESISTOR: 820 ohm, ½ watt EB8211 (01121)		EA	1							*	*	45	7
P D	5910-893-5179	CAPACITOR: 20 mfd., 50 volt TE1305 (56289)		EA	1							*	*	45	8
P D		CAPACITOR: 50 mfd., 15 volt 30D06G015CB2 (56289)		EA	1							*	*	45	9
P D		CAPACITOR: 3 mfd., 100 volt 17UB305K (24152)		EA	1							*	*	45	10
P D		RESISTOR: 2.2 K ohm, 2 watt RC42GF232J (23237)		EA	2							*	*	45	11
P D		DIODE: protective circuit IN4997 (81223)		EA	3							*	*	45	12
P D		TRANSISTOR: protective circuit PNPT03 (81223)		EA	1							*	*	45	13
P D		RESISTOR: 500 ohm, 10 watt PW10-500 (23237)		EA	1							*	*	45	14
P D		RESISTOR: 1 K ohm, ½ watt EB2721 (01121)		EA	4							*	*	45	15
P D	5961-260-4323	TRANSISTOR: protective circuit MPS404A (81223)		EA	1							*	*	45	16
P D		RECTIFIER: protective circuit C6U (01364)		EA	1							*	*	45	17
P D	5905-104-8353	RESISTOR: 4.7 ohm, 1 watt M1LR-39008-3 (81349)		EA	1							*	*	45	18
P D		BOARD: circuit 4999415 (30612)		EA	1							*	*	45	19
P D		CAPACITOR: 1 mfd., 100 volts 17UB105X (24152)		EA	2							*	*	45	20
P D		RESISTOR: 1 K ohm, ½ watt (1%) 45E5493C1K (01364)		EA	1							*	*	45	21
P D		DIODE: silicon SR1734 (81223)		EA	1							*	*	45	22
P D	5961-841-9782	TRANSISTOR: protective circuit 2N3905 (81223)		EA	2							*	*	45	23
P D		TRANSISTOR: protective circuit SS2406 (81223)		EA	1							*	*	45	24

(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REF NUMBER & MFR CODE	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1-YR ALW PER 100 EQUIP CNTGY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATION (a) FIG. NO.	(b) ITEM NO.
	RESISTOR: 2 K ohm, ½ watt (1%) 45E5493C2K (01364)		EA	1							*	*	45	25
	RESISTOR: 15 K ohm, ½ watt EB1531 (01121)		EA	1							*	*	45	26
	RESISTOR: 4.7 K ohm, ½ watt EB4721 (01121)		EA	1							*	*	45	27
	RESISTOR: 2.4 K ohm, 1 watt RC32GF242J (23237)		EA	1							*	*	45	28
	RESISTOR: 5.6 K ohm, ½ watt EB5621 (01121)		EA	1							*	*	45	29
	RESISTOR: 2.7 K ohm, ½ watt EB2721 (01121)		EA	1							*	*	45	30
	RIVET, TUBULAR: 1/8 x 1/4, transistor mounting MS16535-196 (96906)		EA	2							*	*	45	31
	GROUP 46 - DIODE AND CAPACITOR ASSEMBLY													
	DIODE AND CAPACITOR ASSEMBLY: control 4827395 (30612)		EA	1	*	*	*	*	*	*	*	*	46	-
	LEAD, ELECTRICAL: capacitor to diode 4827461 (30612)		EA	1	*	*	*	*	*	*	*	*	46	1
	LEAD, ELECTRICAL: capacitor to diode 4807184 (30612)		EA	1	*	*	*	*	*	*	*	*	46	2
	CAPACITOR: ~~.5500 mfd.~~, ~~50 volt~~ ~~22D552G050BP6B~~ (~~56289~~)		EA	2	*	*	*	*	*	*	*	*	46	3
	CAPACITOR: ~~1000 mfd.~~, ~~250 volt~~ ~~32D102F250BP6B~~ (~~56289~~)		EA	2	*	*	*	*	*	*	*	*	46	4
	LINK: 2-9/16 in., capacitor 4999376 (30612)		EA	4	*	*	*	*	*	*	*	*	46	5
	LINK: 1-3/4 in., capacitor 4994413 (30612)		EA	2	*	*	*	*	*	*	*	*	46	6
5310-761-6882	NUT, PLAIN HEXAGON: resistor mounting MS51967-2 (96906)		EA	2	*	*	*	*	*	*	*	*	46	7
5310-582-5965	WASHER, LOCK: resistor mounting MS35336-33 (96906)		EA	2	*	*	*	*	*	*	*	*	46	8
	INSULATION: resistor mounting 4811148 (30612)		EA	1	*	*	*	*	*	*	*	*	46	9
	RESISTOR: 0.33 ohm 56R104-33H (82807)		EA	1	*	*	*	*	*	*	*	*	46	10
5305-958-5469	SCREW, MACHINE: resistor mounting MS35190-305 (96906)		EA	2	*	*	*	*	*	*	*	*	46	11
	PLATE: assembly mounting 4827273 (30612)		EA	1	*	*	*	*	*	*	*	*	46	12
	SCREW, MACHINE: 1/4-20x3/8, flat head bushing mounting MS35190-285 (96906)		EA	3	*	*	*	*	*	*	*	*	46	13
5310-194-9211	WASHER, LOCK: bushing mounting MS35336-27 (96906)		EA	3	*	*	*	*	*	*	*	*	46	14
	BUSHING: insulator 4790212 (30612)		EA	3	*	*	*	*	*	*	*	*	46	15
5310-880-7744	NUT, PLAIN HEXAGON: diode support mounting MS51967-8 (96906)		EA	3	*	*	*	*	*	*	*	*	46	16

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REF NUMBER & MFR CODE / USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1-YR ALW PER 100 EQUIP CNTGY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATION (a) FIG. NO.	(b) ITEM NO.
P F	5310-261-7340	WASHER, LOCK: diode support mounting MS35338-46 (96906)	EA	6	*	*	*	*	*	*	*	*	46	17
P F	5310-080-6005	WASHER, FLAT: diode support mounting MS27183-14 (96906)	EA	6	*	*	*	*	*	*	*	*	46	18
P F		WASHER, LOCK: No. 8, diode mounting MS35338-42 (96906)	EA	2	*	*	*	*	*	*	*	*	46	19
P F		NUT, PLAIN HEXAGON: No. 8-32, diode mounting MS35649-282 (96906)	EA	2	*	*	*	*	*	*	*	*	46	20
P F		SUPPORT: diode 4827271 (30612)	EA	1	*	*	*	*	*	*	*	*	46	21
P F	5310-582-5965	WASHER, LOCK: diode support mounting MS35338-44 (96906)	EA	4	*	*	*	*	*	*	*	*	46	22
P F	5310-068-0502	SCREW, CAP, HEXAGON HEAD: diode support mounting MS90725-6 (96906)	EA	4	*	*	*	*	*	*	*	*	46	23
P F		SCREW, CAP, HEXAGON HEAD: diode support MS90725-61 (96906)	EA	1	*	*	*	*	*	*	*	*	46	24
P F		DIODE: 50 amp. flange mounted MR1200FL (81223)	EA	1	*	*	*	*	*	*	*	*	46	25
P F		SCREW, MACHINE: No. 8-32x3/4, diode mounting MS35206-247 (96906)	EA	2	*	*	*	*	*	*	*	*	46	26
P F		DIODE: ~~400 amp, 400 volts~~ ~~MR1041SL~~ (81223)	EA	1	*	*	*	*	*	*	*	*	46	27
P F		SCREW, CAP, HEXAGON HEAD: 3/8-16x1, diode contact MS90725-60 (96906)	EA	2	*	*	*	*	*	*	*	*	46	28
P F		DIODE: ~~300 amp, 100 volts~~ ~~MR1231SL (04713)~~ 4827397-2	EA	1	*	*	*	*	*	*	*	*	46	29
P F		STRIP: weather, capacitor 4996824 (30612)	EA	1	*	*	*	*	*	*	*	*	46	30
P F		CLAMP: capacitor mounting 00-735-337MK128 (92392)	EA	1	*	*	*	*	*	*	*	*	46	31
P F	5305-225-8499	SCREW, CAP, HEXAGON HEAD: diode mounting MS90725-34 (96906)	EA	2	*	*	*	*	*	*	*	*	46	32
P F	5310-407-9566	WASHER, LOCK: diode mounting MS35338-45 (96906)	EA	2	*	*	*	*	*	*	*	*	46	33
P F		NUT, PLAIN, HEXAGON: diode mounting MS35691-9 (96906)	EA	2	*	*	*	*	*	*	*	*	46	34

(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REF NUMBER & MFR CODE	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1-YR ALW PER 100 EQUIP CNTGY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUS-TRATION (a) FIG. NO.	(b) ITEM NO.
	GROUP 47 - SHUNT ASSEMBLY													
	SHUNT ASSEMBLY: current limit 4810077 (30612)		EA	1	*	*	*	*	*	*	*	*	47	-
	CLAMP: element mounting 4812593 (30612)		EA	2	*	*	*	*	*	*	*	*	47	1
5310-809-4058	WASHER, FLAT: element mounting MS27183-10 (96906)		EA	2	*	*	*	*	*	*	*	*	47	2
	WASHER, LOCK: 1/4, element mounting MS35333-40 (96906)		EA	2	*	*	*	*	*	*	*	*	47	3
5310-997-1888	NUT, PLAIN HEXAGON: element mounting MS35649-2252 (96906)		EA	2	*	*	*	*	*	*	*	*	47	4
	ELEMENT ASSEMBLY: shunt 4812588 (30612)		EA	1	*	*	*	*	*	*	*	*	47	5
5305-984-6193	SCREW, MACHINE: spacer mounting MS35206-245 (96906)		EA	2	*	*	*	*	*	*	*	*	47	6
5310-559-0070	WASHER, LOCK: shunt mounting MS35338-38 (96906)		EA	2	*	*	*	*	*	*	*	*	47	7
	WASHER, FLAT: No. 8, shunt mounting MS27183-7 (96906)		EA	2	*	*	*	*	*	*	*	*	47	8
	SPACER: shunt assembly mounting 4812592 (30612)		EA	2	*	*	*	*	*	*	*	*	47	9
	STUD: element mounting 4812591 (30612)		EA	2	*	*	*	*	*	*	*	*	47	10
	BUSHING, TUBE: insulating 4790212 (30612)		EA	2	*	*	*	*	*	*	*	*	47	11
	SCREW, MACHINE: shunt MS35190-289 (96906)		EA	2	*	*	*	*	*	*	*	*	47	12
5310-194-9211	WASHER, LOCK: shunt MS35336-27 (96906)		EA	2	*	*	*	*	*	*	*	*	47	13
	GROUP 48 - BRAKE INTERLOCK ASSEMBLY													
5305-411-0682	SCREW, MACHINE: microswitch mounting MS51957-124 (96906)		EA	2	*	*	*	*	*	*	*	*	48	1
5310-045-4007	WASHER, LOCK: microswitch mounting MS35338-41 (96906)		EA	2	*	*	*	*	*	*	*	*	48	2
5310-934-9747	NUT, PLAIN HEXAGON: microswitch mounting MS35649-262 (96906)		EA	2	*	*	*	*	*	*	*	*	48	3
5930-202-0878	SWITCH: micro, brake interlock BZ2RW822T (91929)		EA	1	*	*	*	*	*	*	*	*	48	4
	BRACKET: switch mounting 4828481 (30612)		EA	1	*	*	*	*	*	*	*	*	48	5
	ACTUATOR: microswitch 4807538 (30612)		EA	1	*	*	*	*	*	*	*	*	48	6
	RESISTOR BLOCK: 4809775 (30612)		EA	1	*	*	*	*	*	*	*	*	48	7
5310-761-6882	NUT, PLAIN HEXAGON: resistor mounting MS51967-2 (96906)		EA	2	*	*	*	*	*	*	*	*	48	8
	WASHER, LOCK: 1/4 resistor mounting MS35338-44 (96906)		EA	2	*	*	*	*	*	*	*	*	48	9
	SCREW, CAP, HEXAGON HEAD: 1/4-20x3/4, resistor mounting MS90725-6 (96906)		EA	2	*	*	*	*	*	*	*	*	48	10

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REF NUMBER & MFR CODE / USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1-YR ALW PER 100 EQUIP CNTGY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATION (a) FIG. NO.	(b) ITEM NO
		GROUP 49 PARTS KITS AND ASSOCIATED PARTS												
P O		PARTS KIT: battery connector 4998844 (30612)	EA	1	*	*	*	*	*	*	*	*		
		2 - screw											4	7
		2 - screw											4	9
		1 - block											4	10
		1 - block											4	14
		1 - block											4	16
		1 - block											4	20
		2 - screw											4	21
		2 - screw											4	23
P O	3930-019-1047	PARTS KIT: battery connector 4998846 (30612)	EA	1	*	*	*	*	*	*	*	*		
		2 - spring											4	11
		2 - contact											4	12
		2 - ring											4	13
		2 - ring											4	17
		2 - contact											4	18
		2 - spring											4	19
P F		PARTS KIT: parking brake 4999874 (30612)	EA	1	*	*	*	*	*	*	*	*		
		2 - spring											8	2
		2 - shoe											8	3
P F	2530-075-0152	PARTS KIT: service brake FC5353 (63477)	EA	1	*	*	*	*	*	*	*	*		
		4 - boot											11	8
		4 - cup											11	10
P F	2530-359-0347	PARTS KIT: master cylinder 4984201 (30612)	EA	1	*	*	*	*	*	*	*	*		
		1 - valve assembly											12	8
		1 - cup											12	10
		1 - piston assembly											12	11
		1 - plate											12	12
		1 - wire											12	13
		1 - boot											12	14
P F		REPAIR KIT: hydraulic pump 24380-909 (71379)	EA	1	*	*	*	*	*	*	*	*		
		1 - diaphragm											21	4
		2 - gasket											21	5
		2 - gasket											21	6
		1 - seal											21	7
		2 - spring											21	8
		2 - ball											21	9
		1 - seal											21	11
		1 - gasket											21	18
		1 - seal											21	19
		1 - diaphragm											21	20
		1 - packing											21	23
P F	3930-075-0159	PACKING KIT: hydraulic pump 15511-43 (71379)	EA	1	*	*	*	*	*	*	*	*		-
		1 - diaphragm											22	4
		2 - gasket											22	5
		2 - gasket											22	6
		1 - seal											22	7
		2 - spring											22	8
		2 - ball											22	9
		1 - seal											22	11
		1 - diaphragm											22	20

(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REF NUMBER & MFR CODE	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1-YR ALW PER 100 EQUIP CNTGY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATION (a) FIG. NO.	(b) ITEM NO.
	PARTS KIT: lift cylinders 4906380 (30612)		EA	1	*	*	*	*	*	*	*	*		
	3 - block												25	2
	3 - ring												25	3
	3 - packing												25	4
	6 - pellet												25	5
	3 - ring												25	7
	3 - packing												25	8
	1 - block												26	4
	2 - pellet												26	5
	1 - ring												26	6
	1 - packing												26	7
	1 - ring												26	9
	1 - packing												26	10
	PARTS KIT: lifting fork 4999824 (30612)		EA	1	*	*	*	*	*	*	*	*		
	2 - pin												27	1
	2 - spring												27	2
	4 - washer												27	3
	2 - latch												27	4
	2 - pin												27	5
	2 - pin												27	6
3930-727-5189	PARTS KIT: tilt cylinder 4991278 (30612)		EA	1	*	*	*	*	*	*	*	*		
	2 - packing												31	8
	2 - packing												31	11
	2 - washer												31	12
	2 - packing												31	13
	2 - washer												31	14
	2 - packing												31	19
	2 - washer												31	20
	2 - packing												31	24
	PARTS KIT: contact assembly 14-318-773-501 (92392)		EA	1	*	*	*	*	*	*	*	*		
	2 - finger assembly												36	23
	4 - rivet												36	24
	4 - spring												36	25
	4 - support												36	26
	4 - finger												36	27
	8 - strip												36	28
	4 - washer												36	29

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REF NUMBER & MFR CODE USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1-YR ALW PER 100 EQUIP CNTGY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATION (a) FIG. NO.	(b) ITEM NO
		SECTION III - SPECIAL TOOLS, TEST AND SUPPORT EQUIPMENT FOR GS, DS AND DEPOT MAINTENANCE (NOT APPLICABLE)												

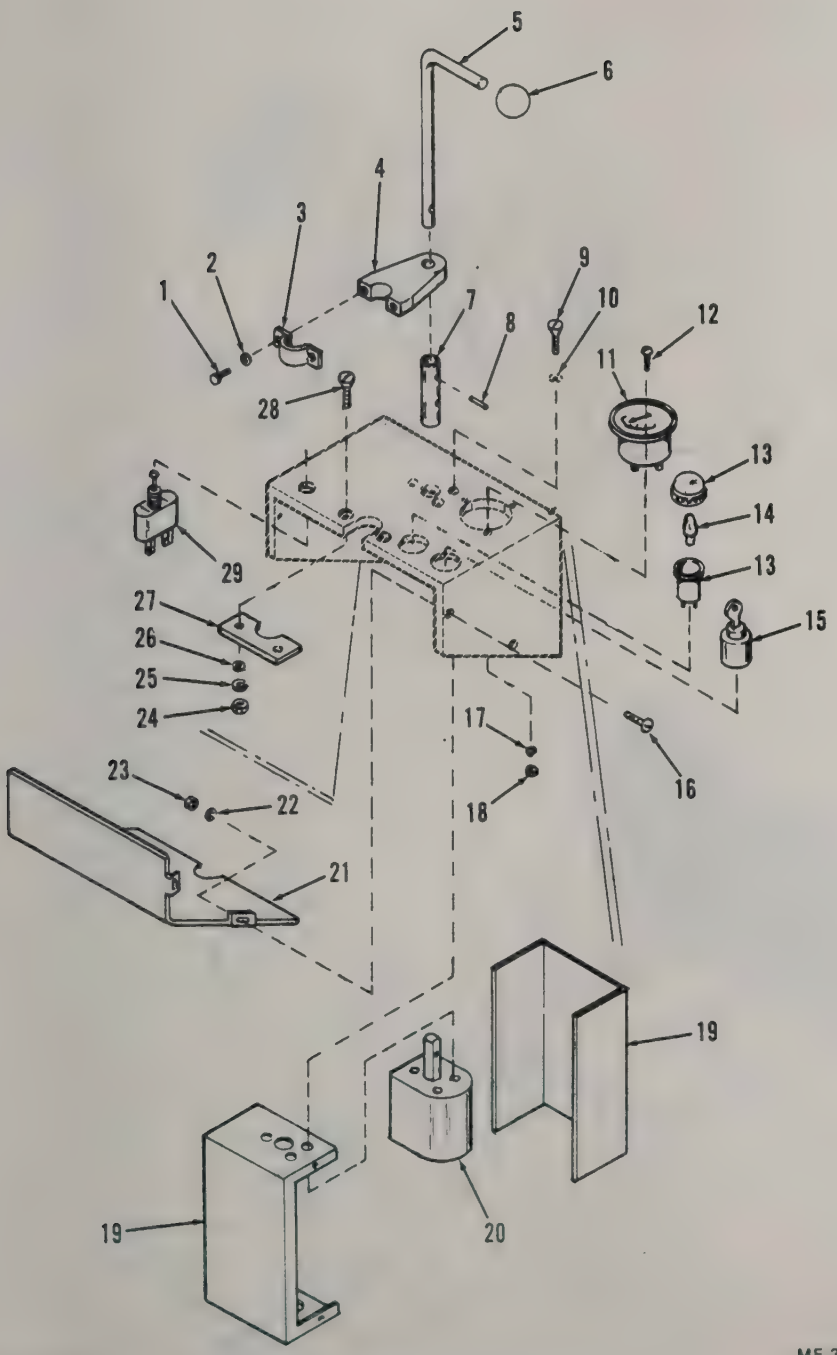

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Figure 1. Instrument panel and associated parts

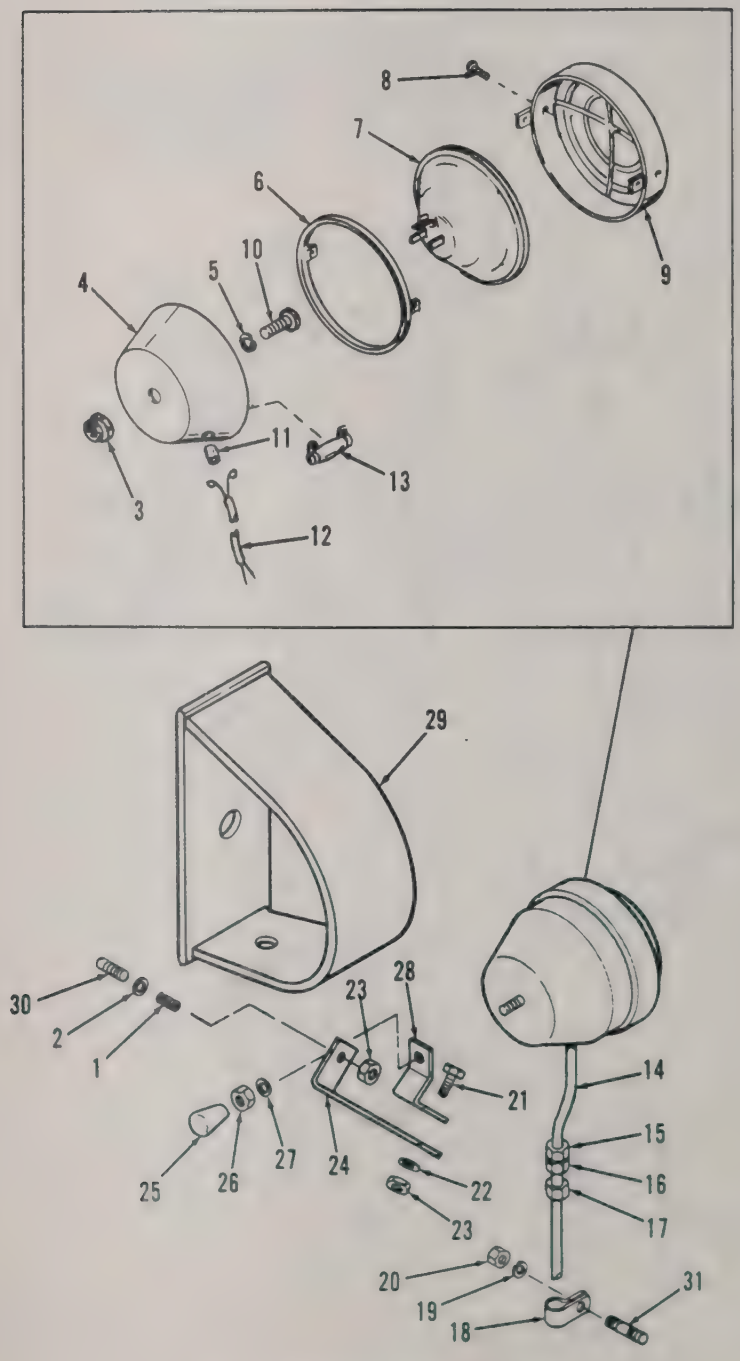

Figure 2. Headlight and mounting parts

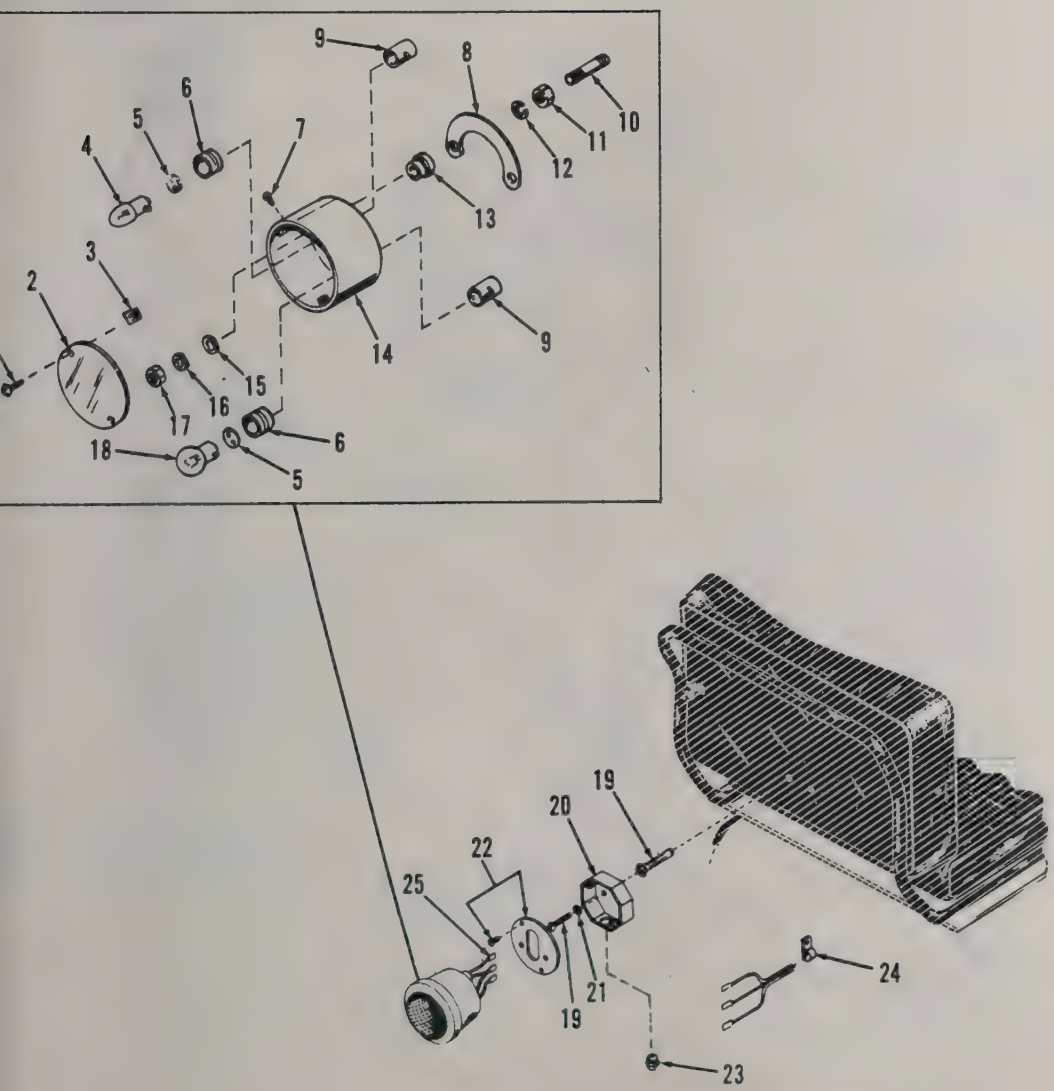

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Figure 3. Stop and taillight assembly

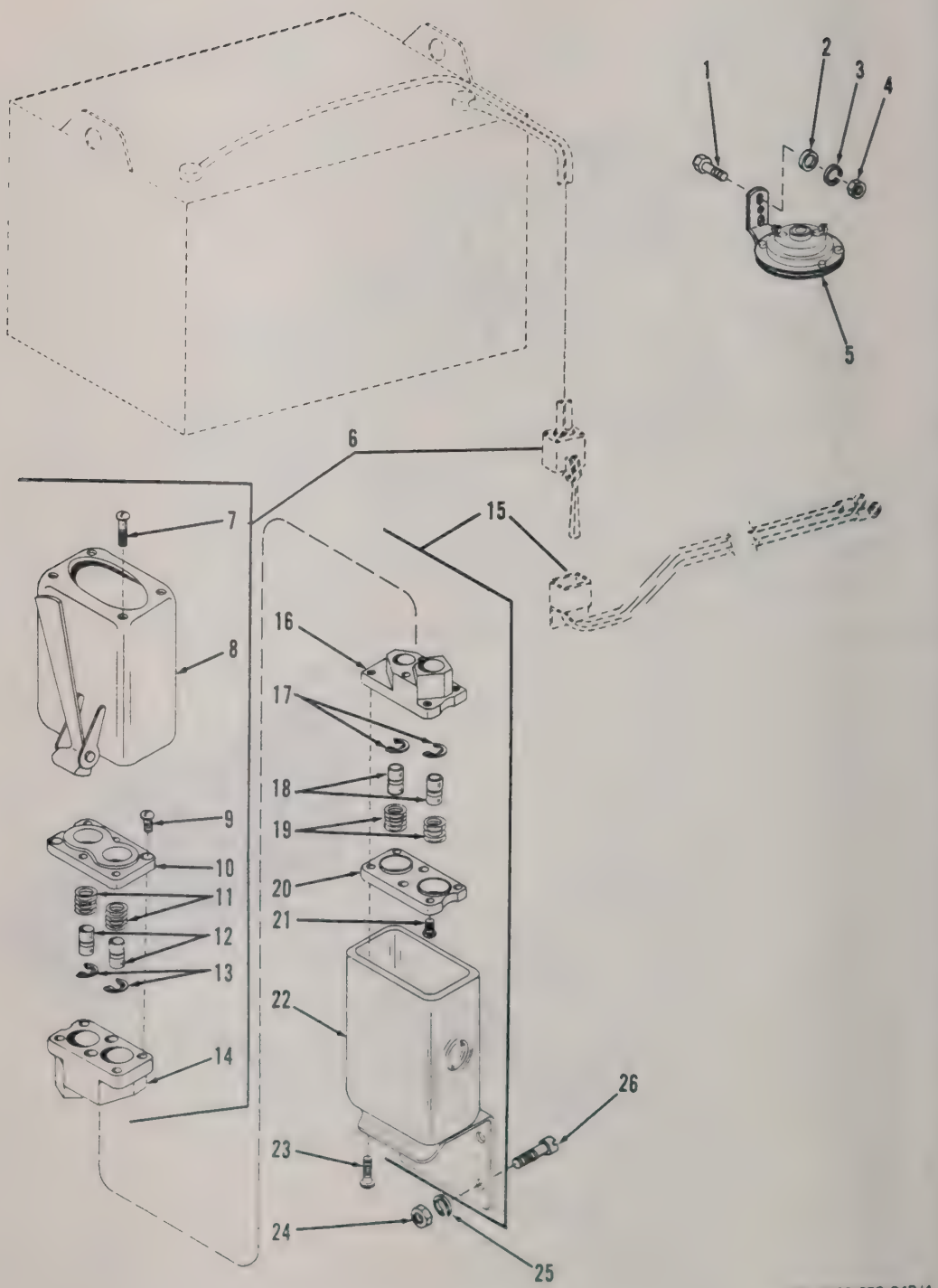

Figure 4. Battery connector and horn

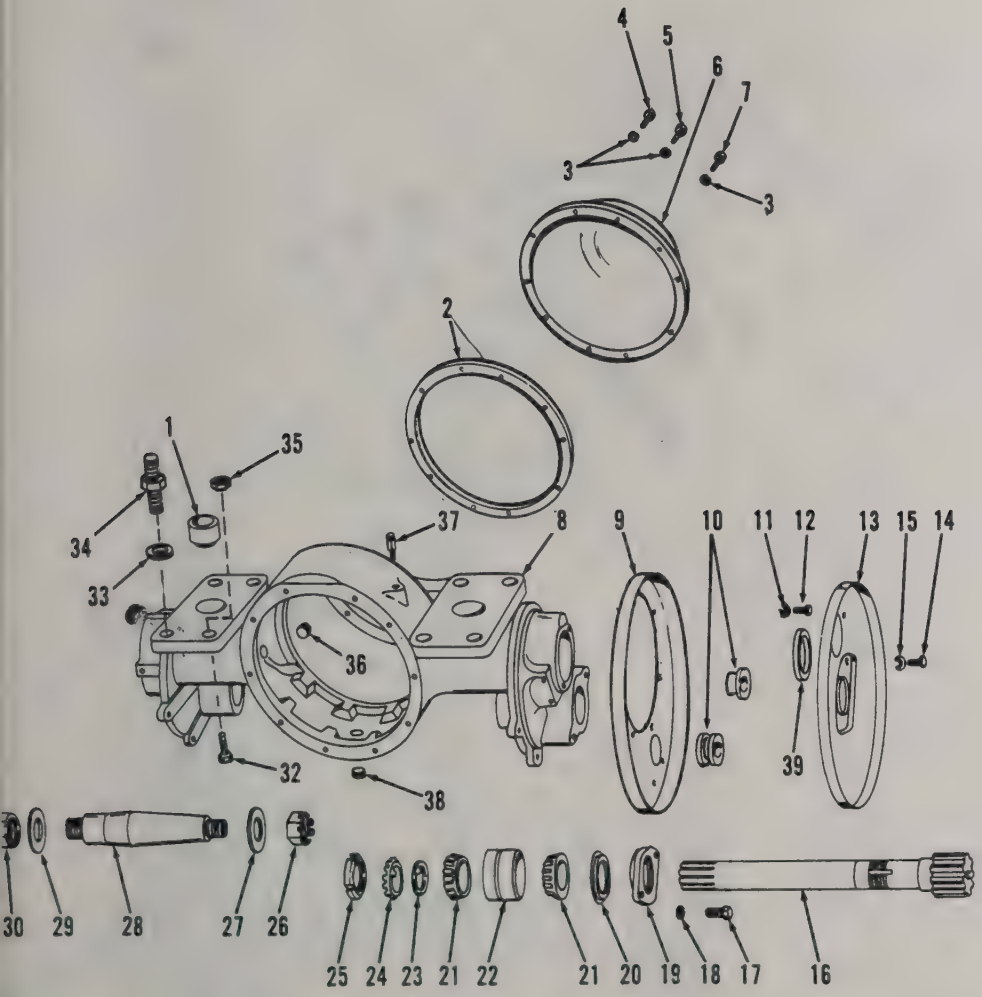

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Figure 5. Drive axle housing and shafts

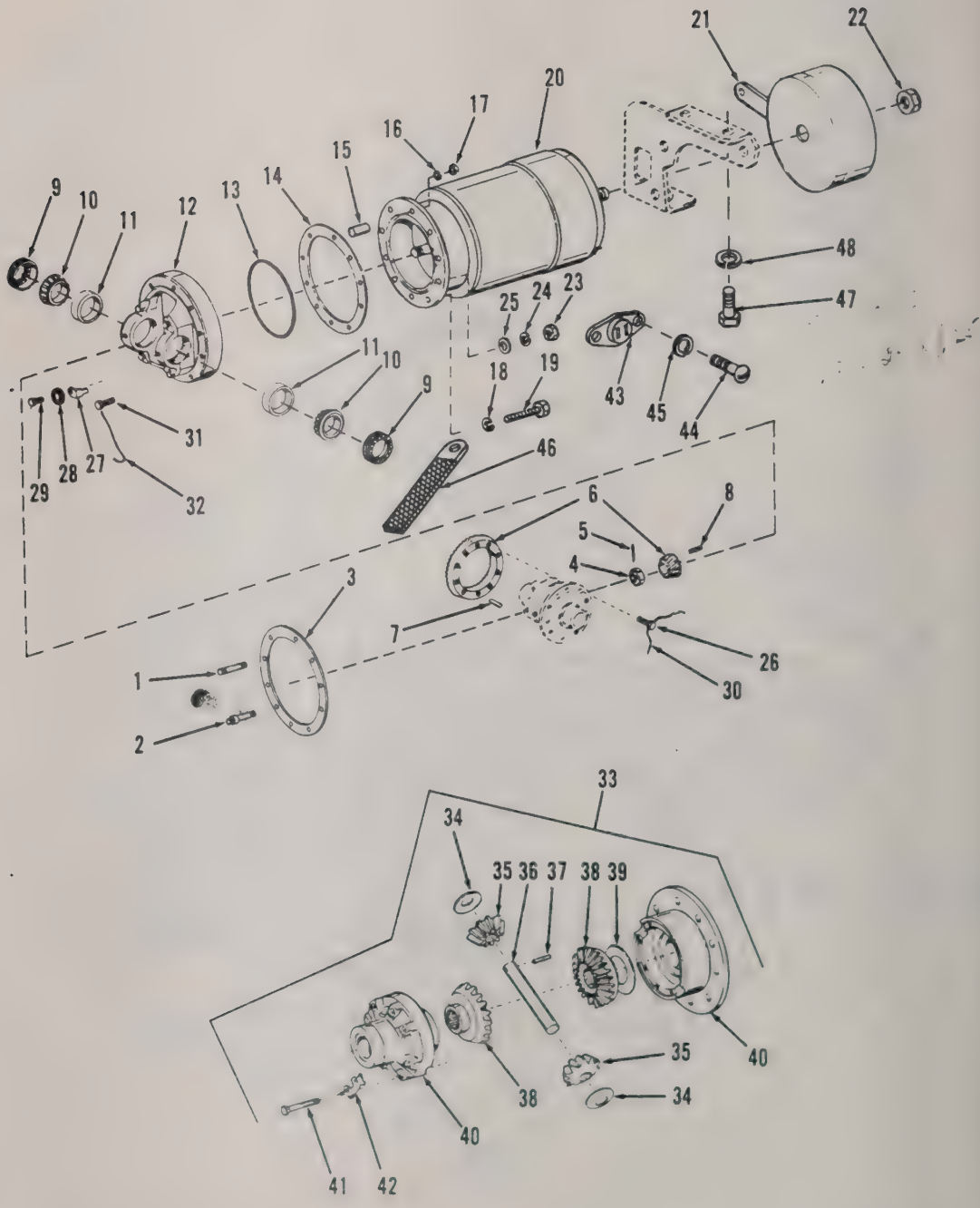

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Figure 6. Differential and drive motor

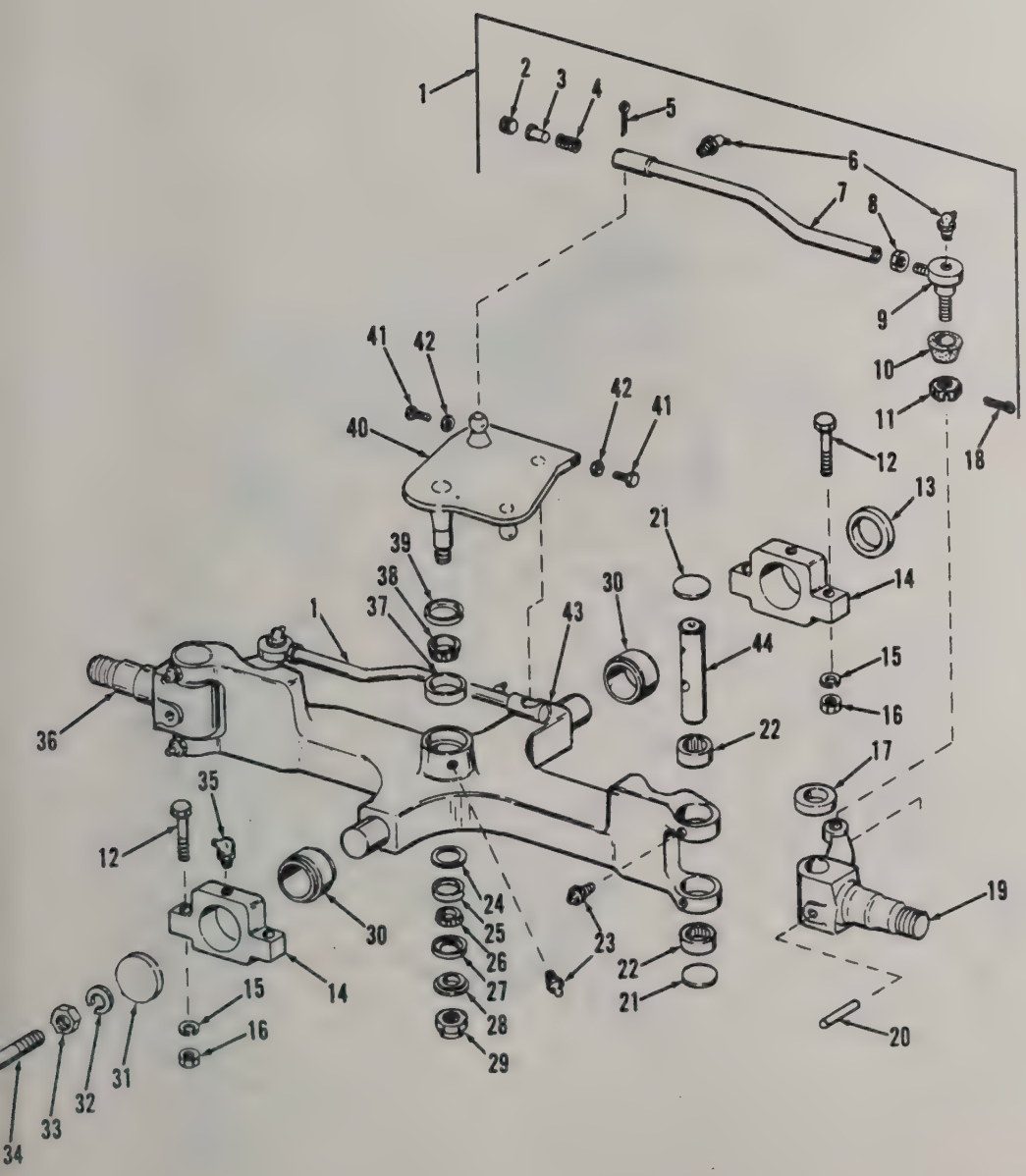

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Figure 7. Steering axle assembly

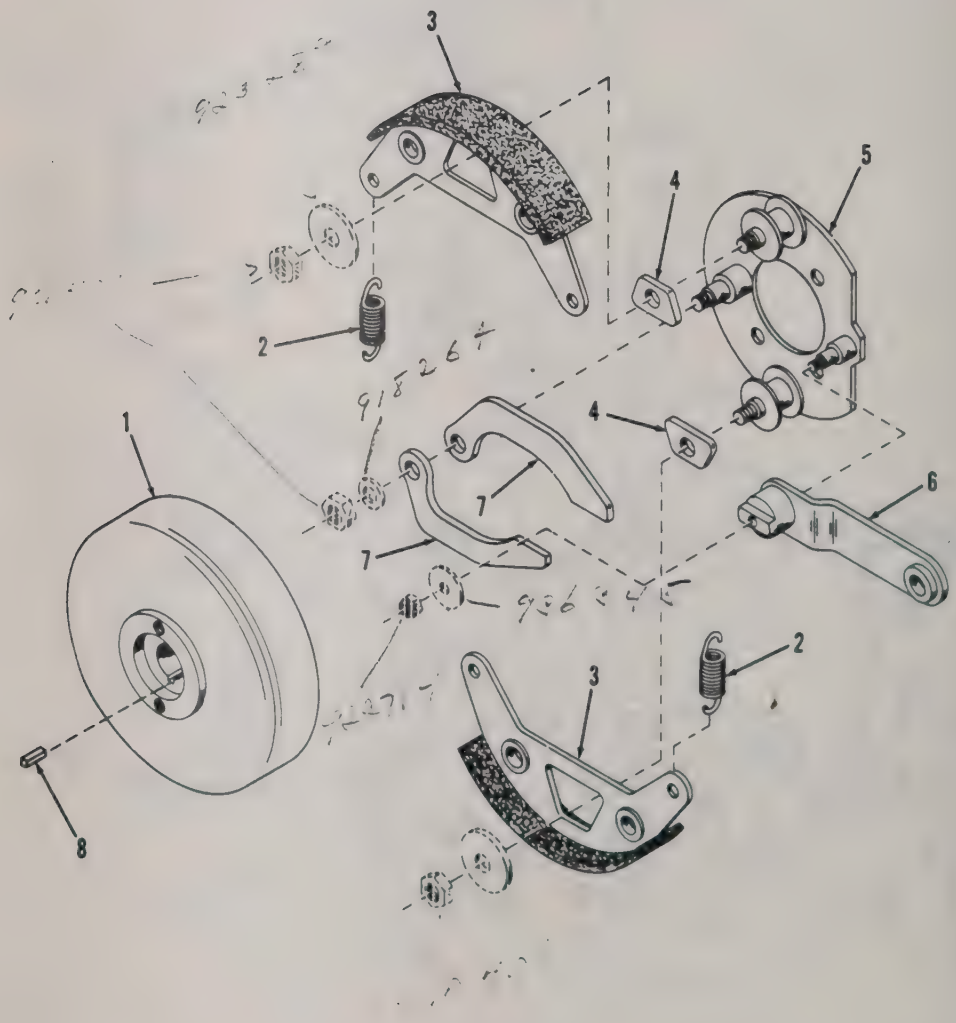

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Figure 8. Parking brake assembly

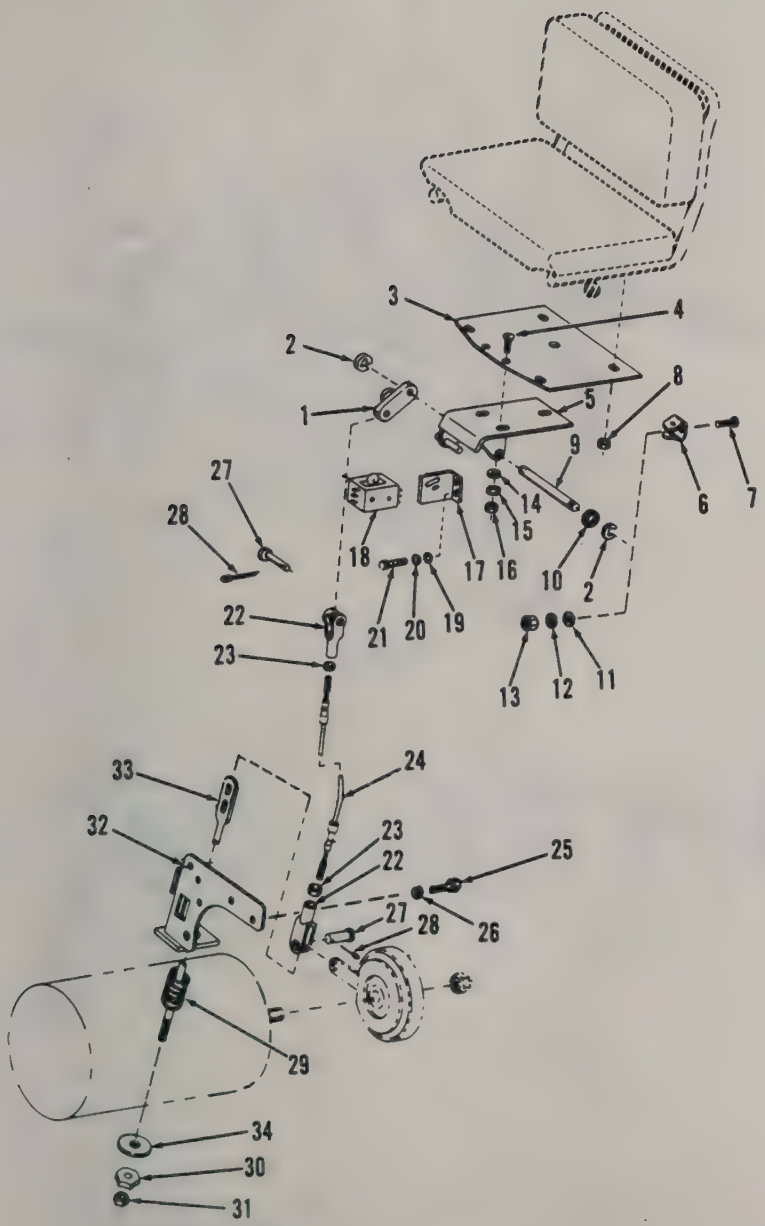

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Figure 9. Seat brake bracket and switch assembly

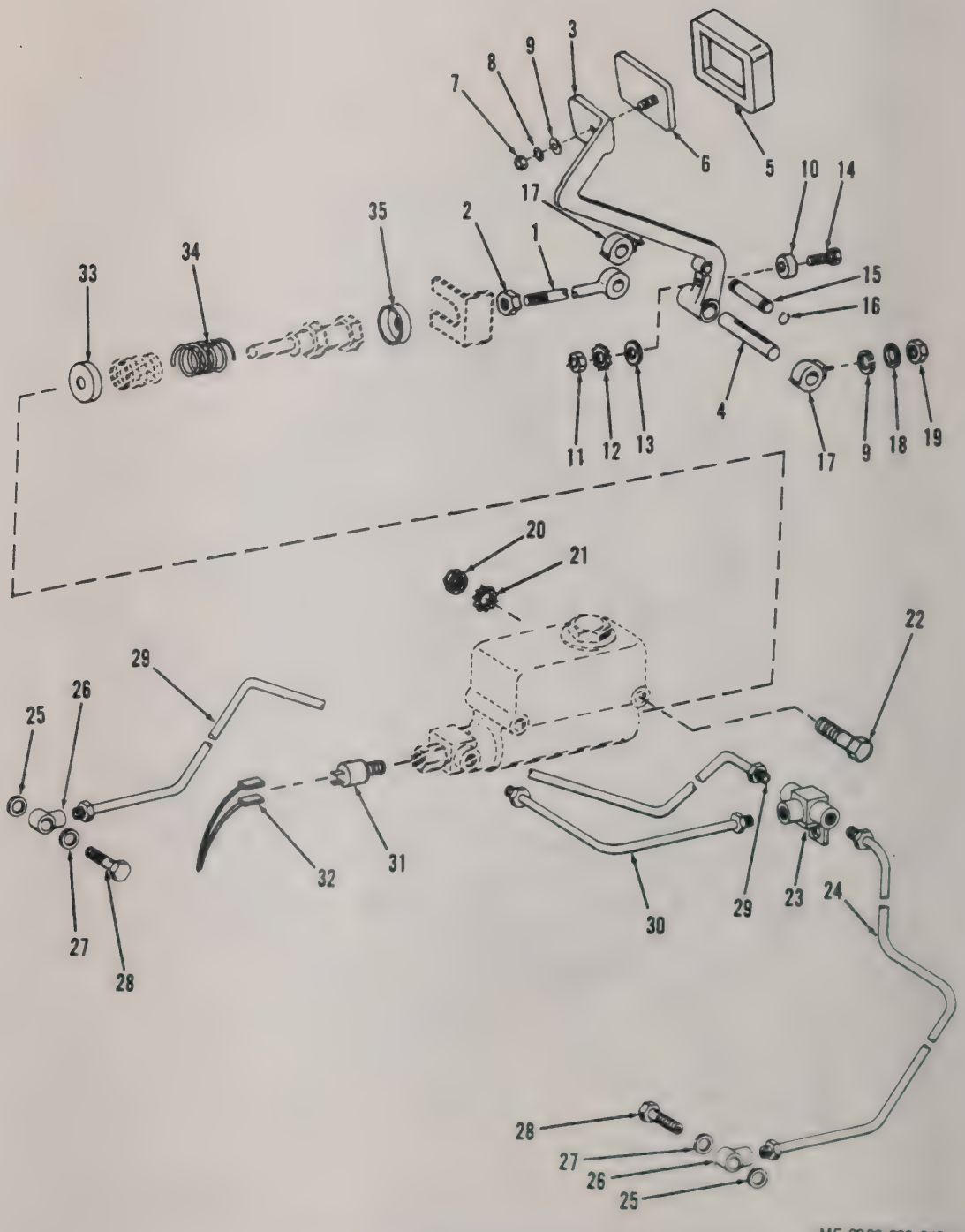

Figure 10. Brake pedal and associated parts

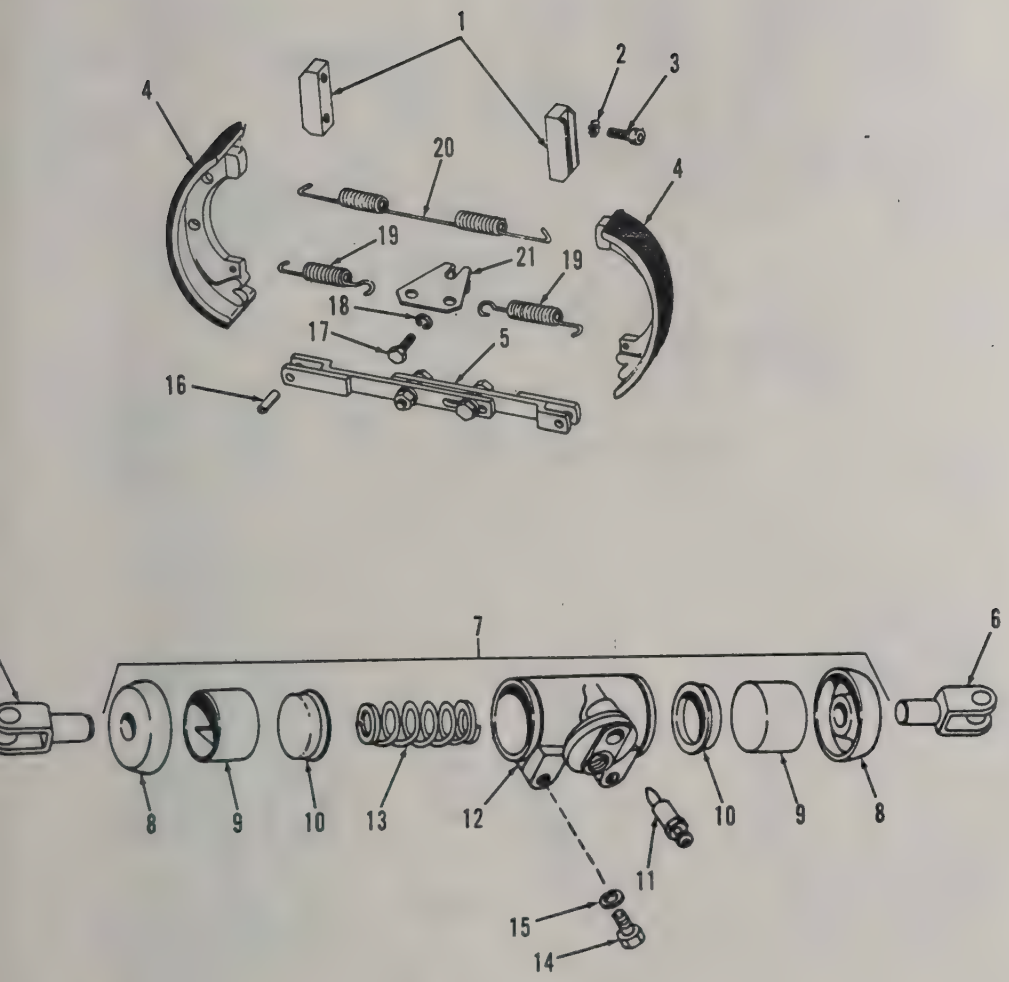

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Figure 11. Service brake assembly

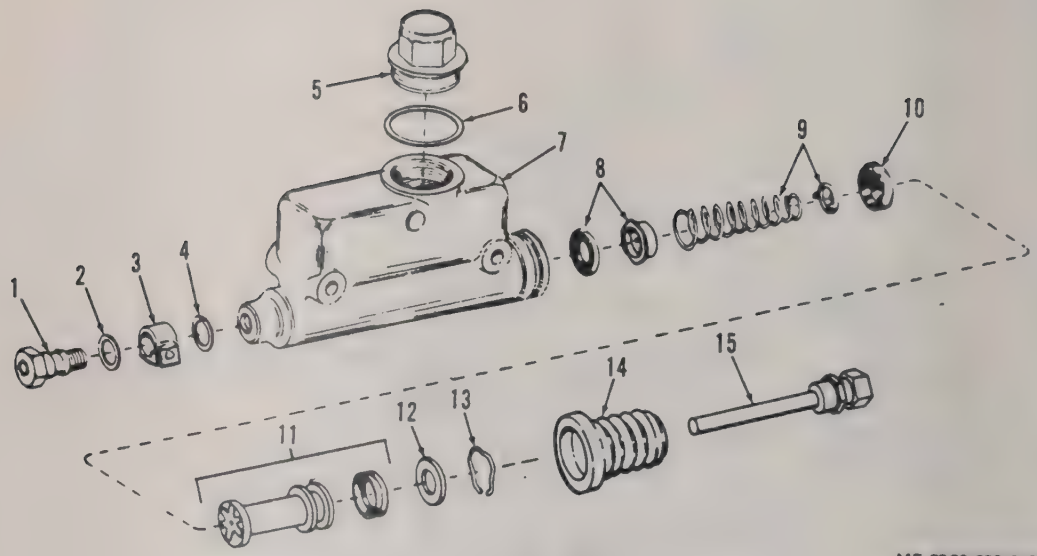

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Figure 12. Brake master cylinder assembly

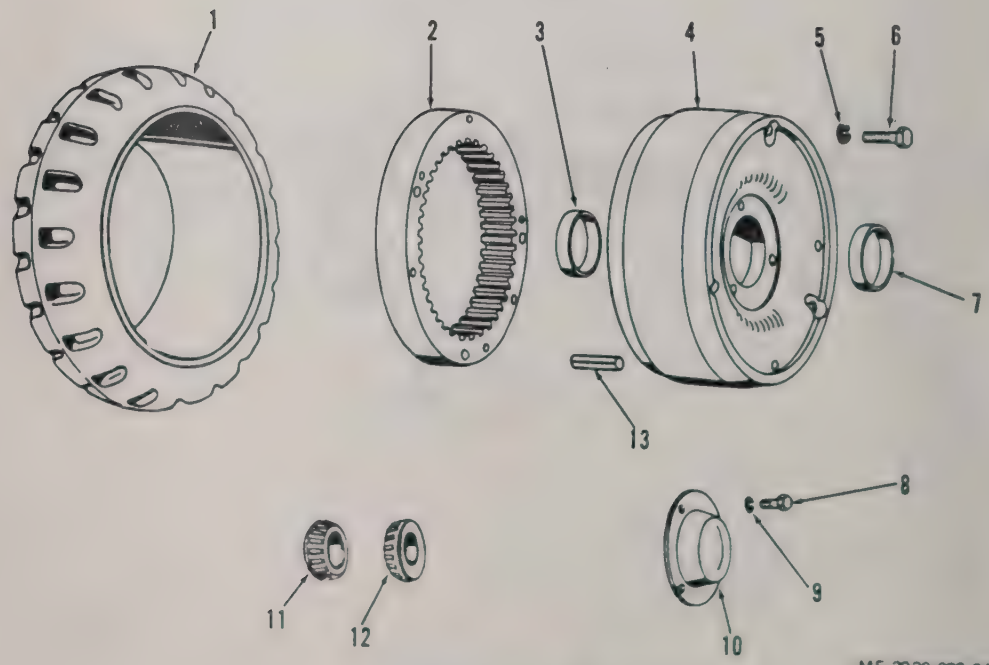

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Figure 13. Drive wheel assembly

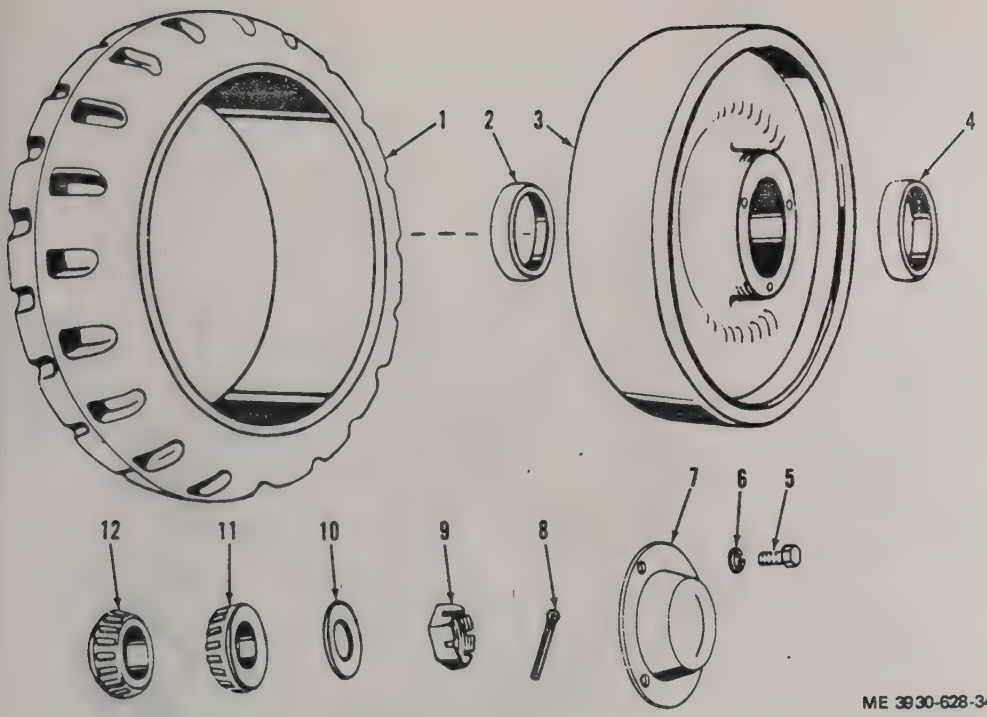

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Figure 14. Rear wheel assembly

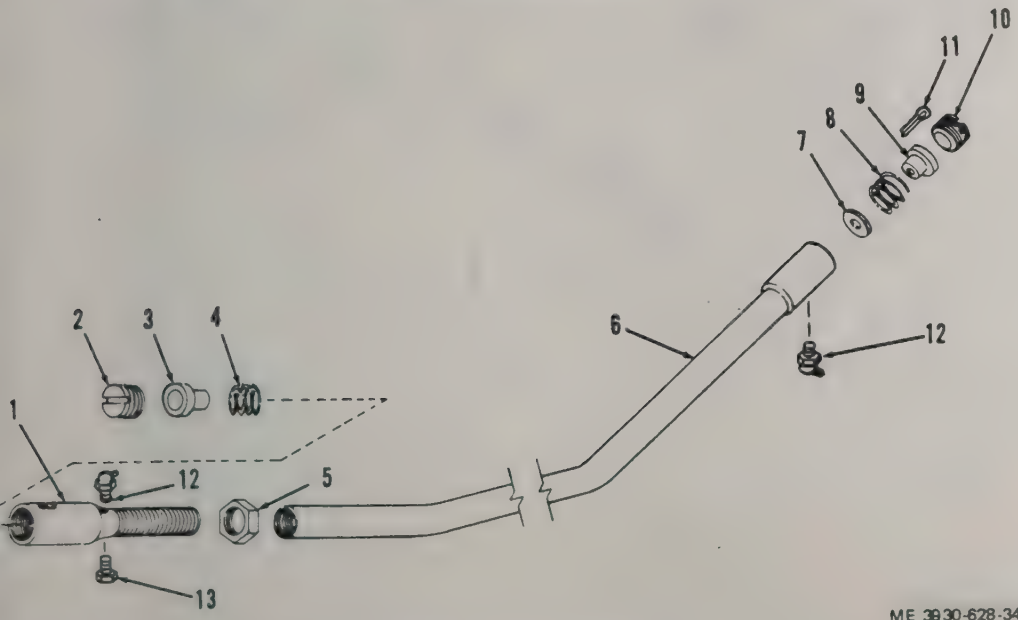

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Figure 15. Drag link assembly

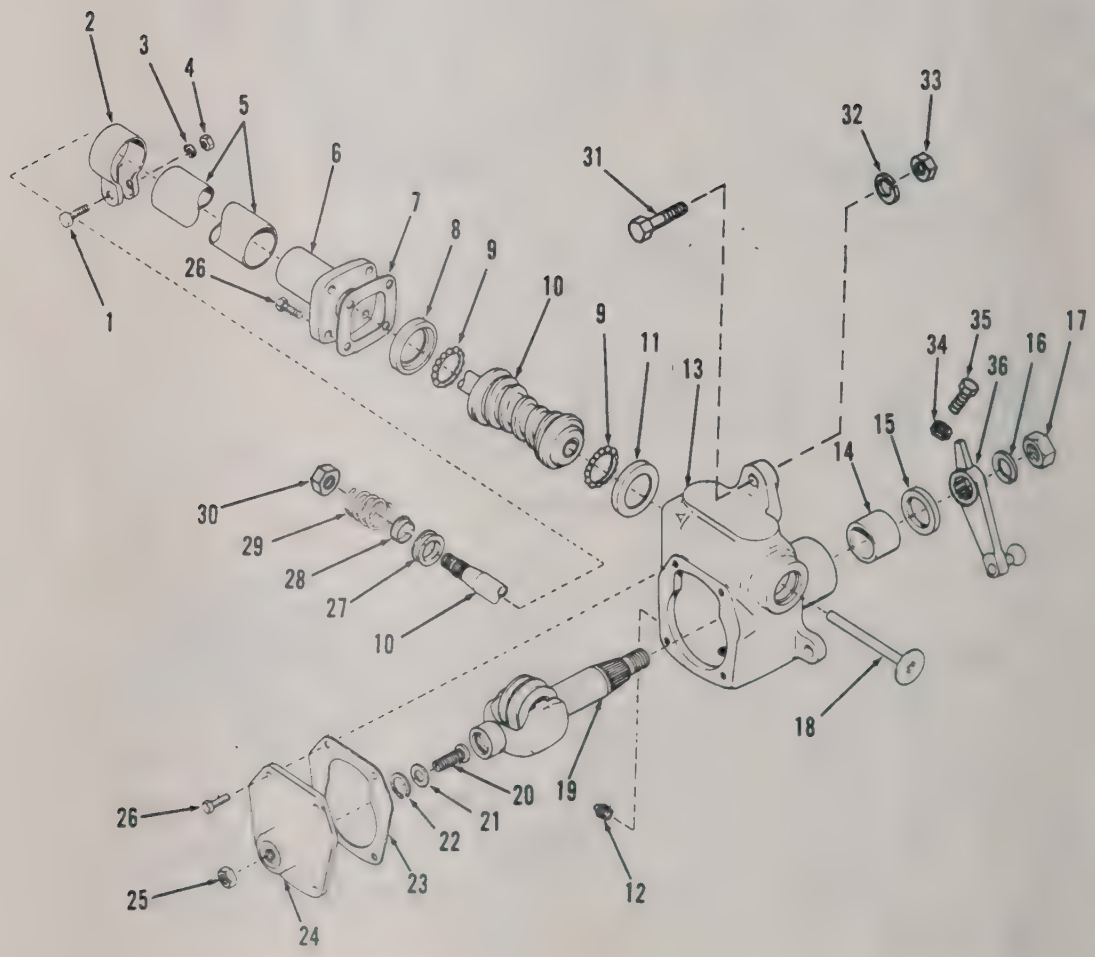

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Figure 16. Steering gear assembly

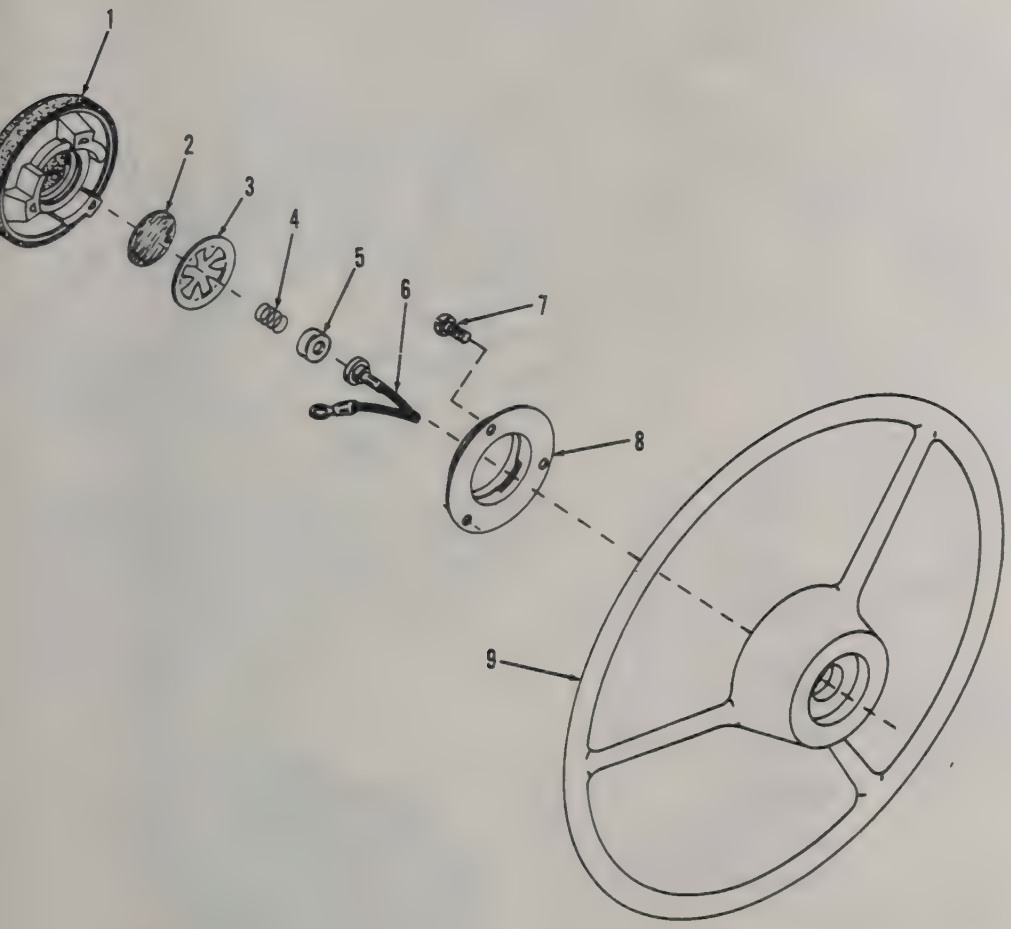

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Figure 17. Steering wheel and horn assembly

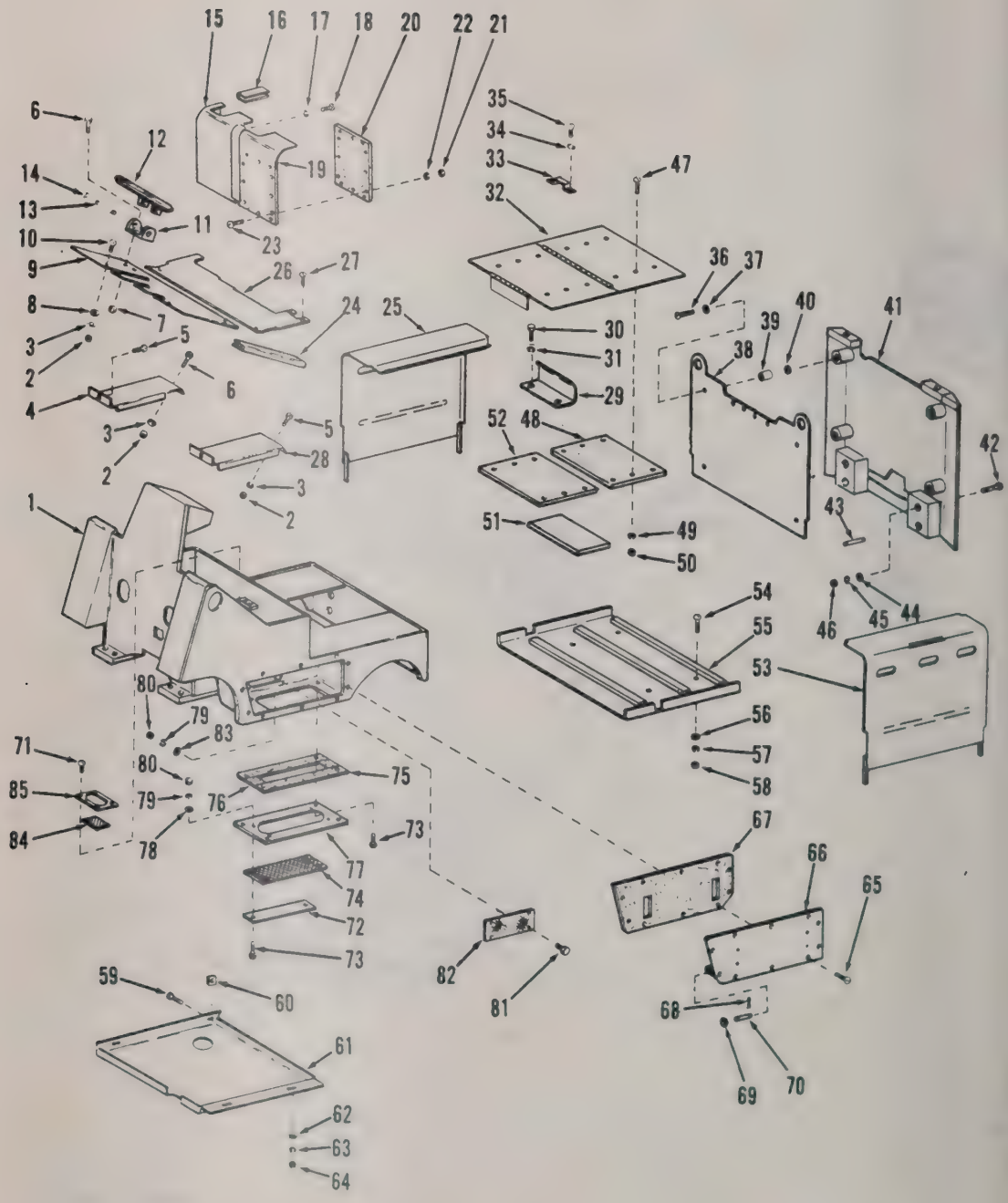

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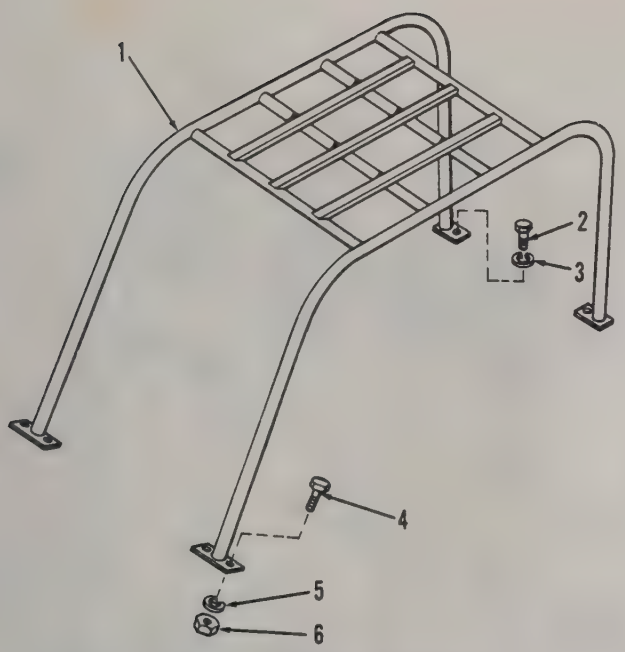
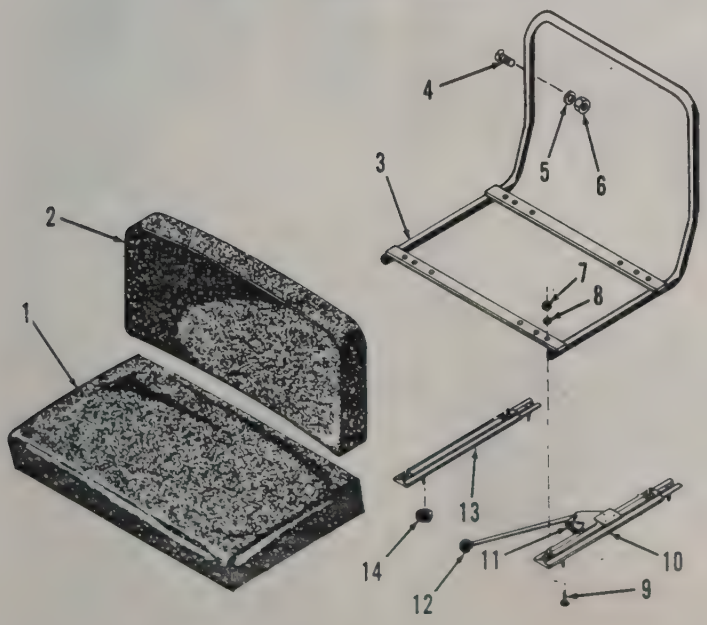
Figure 18. Frame and components



ME 3930-628-34P/19

Figure 19. Overhead guard assembly



ME 3930-628-34P/20

Figure 20. Seat assembly

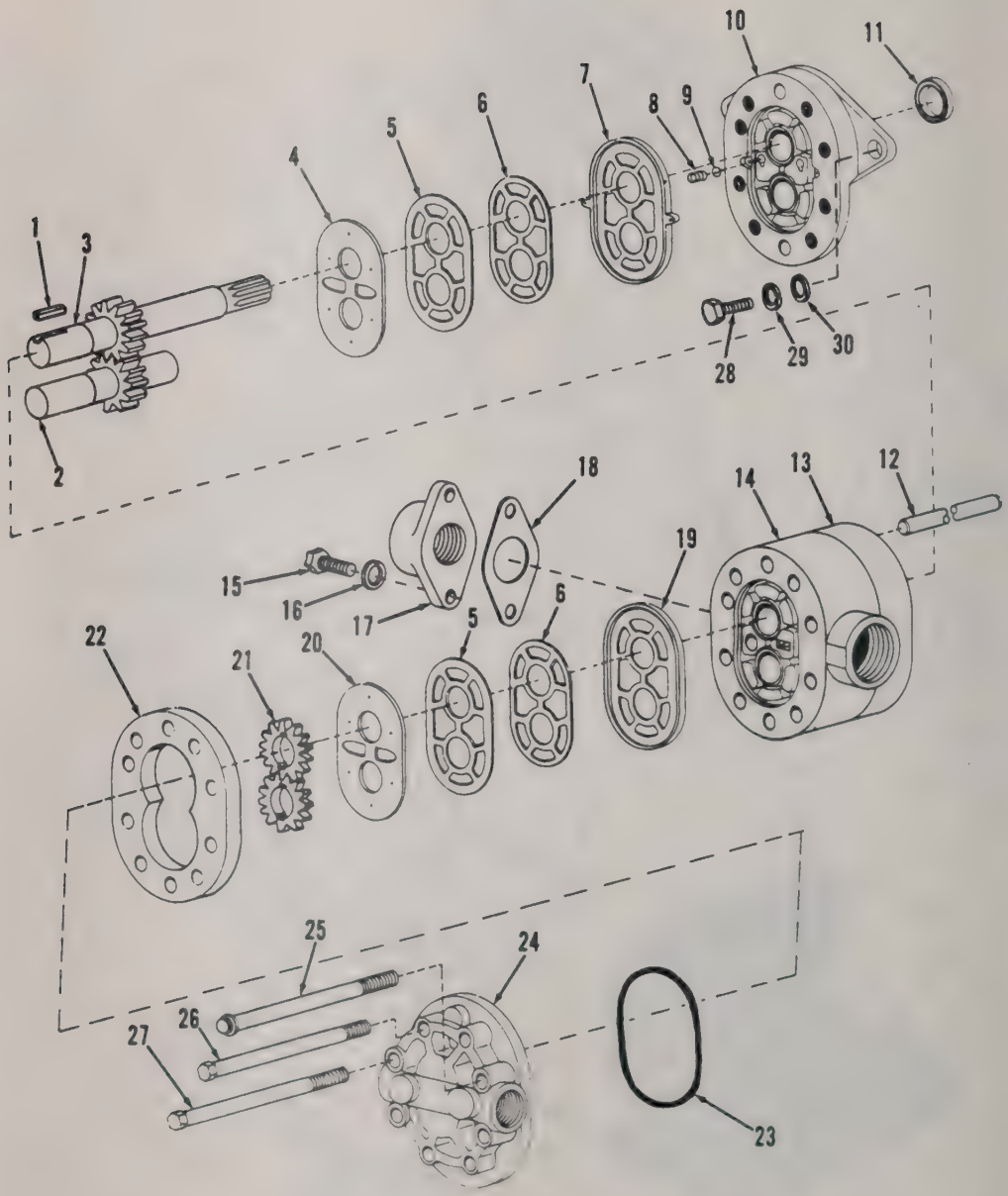


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Figure 21. Hydraulic pump assembly

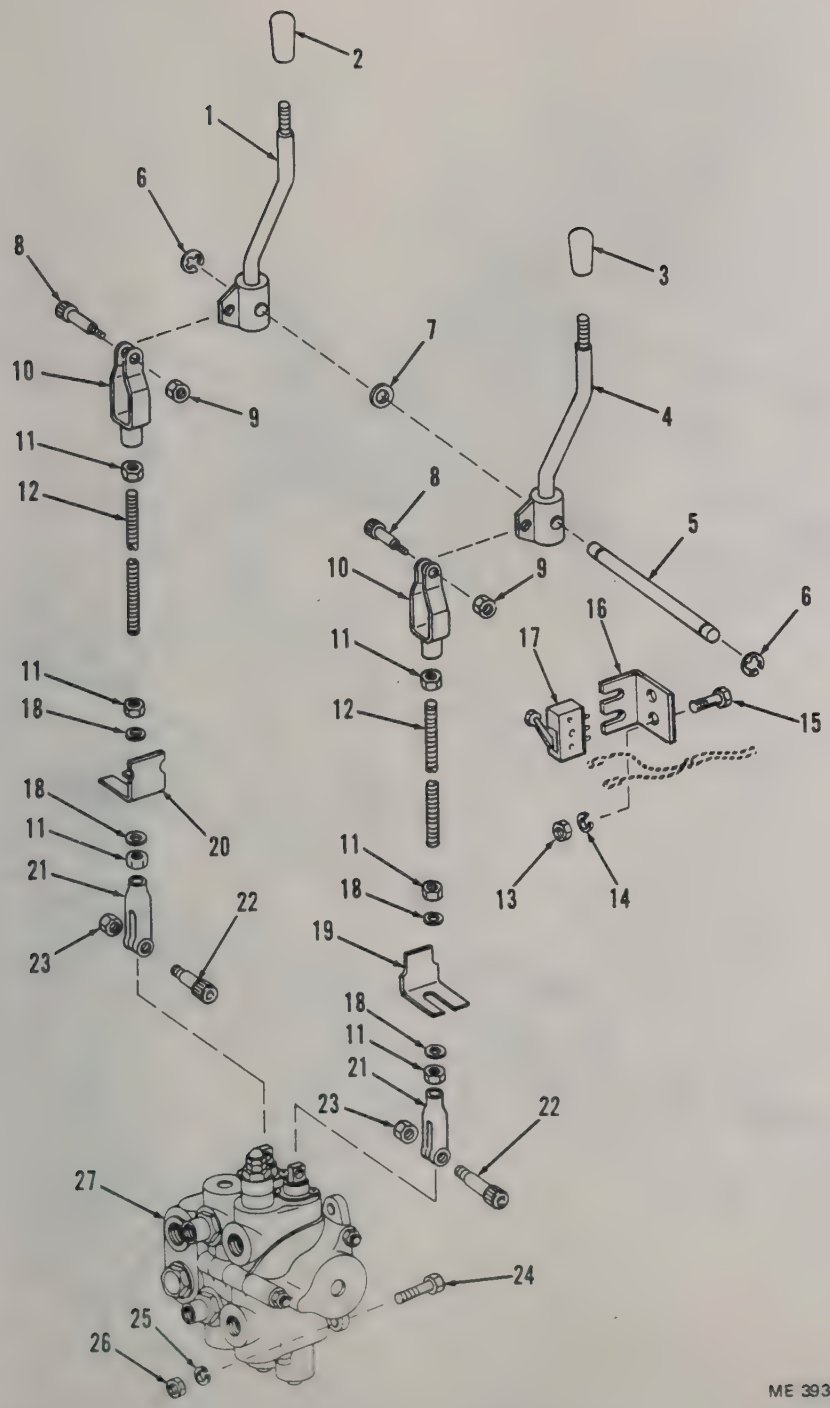

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Figure 22. Control valve and linkage

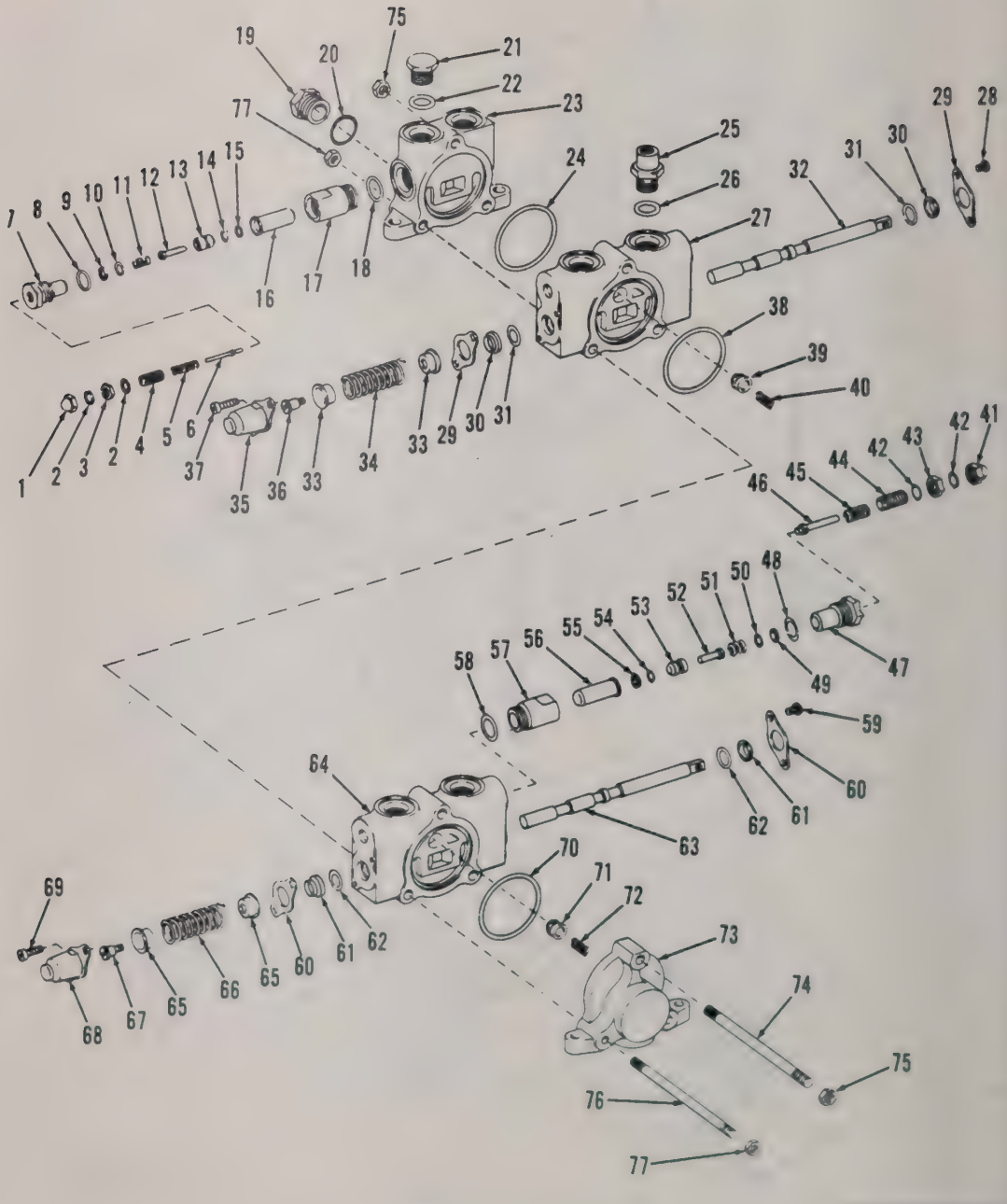

Figure 23. Hydraulic control valve assembly

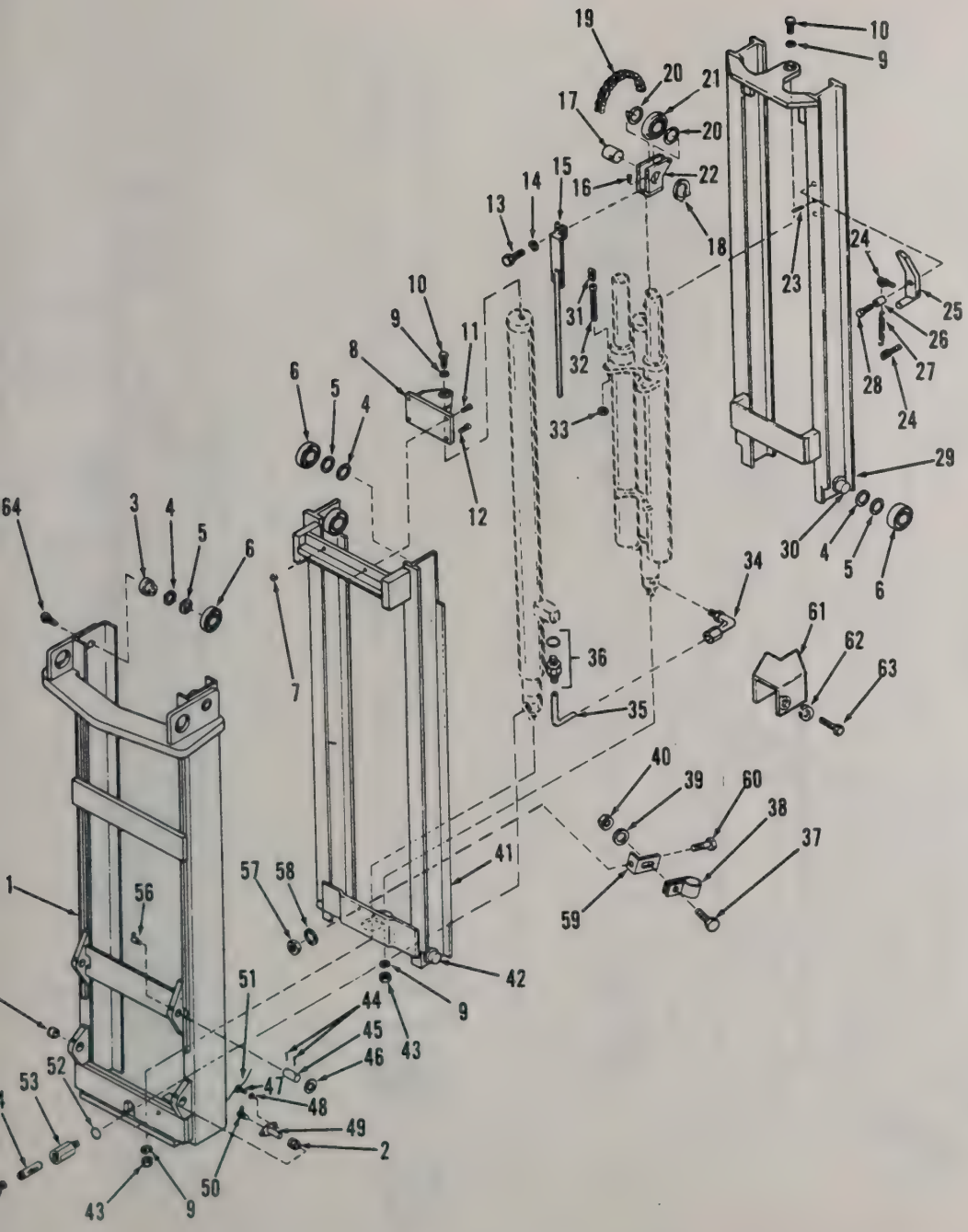

Figure 24. Mast and associated parts

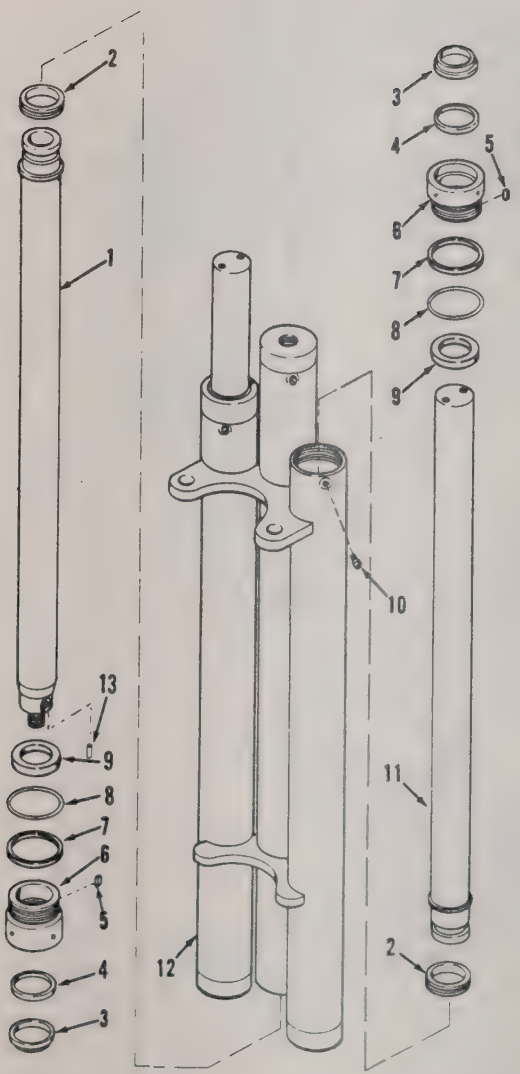

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Figure 25. Cylinder cluster assembly

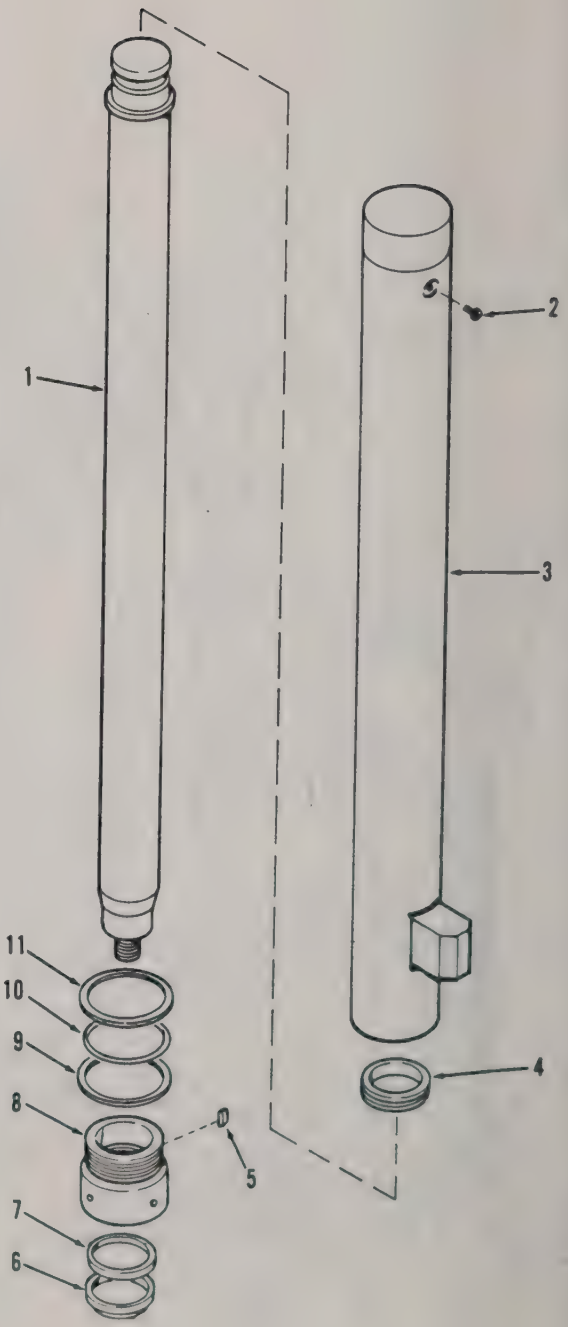

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Figure 26. Lift cylinder assembly

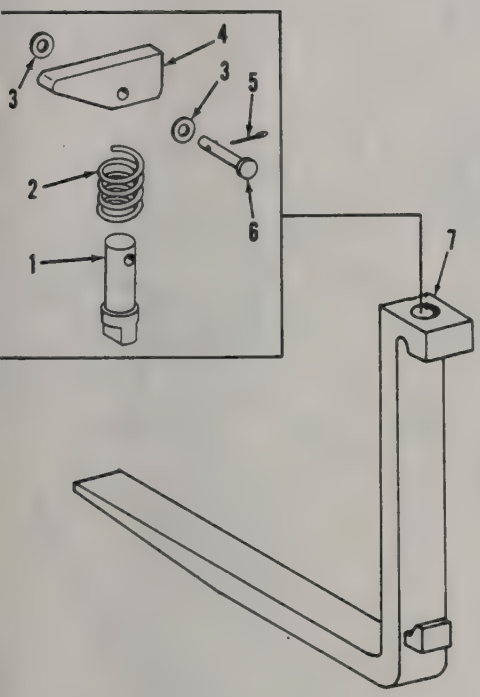

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Figure 27. Lifting fork and associated parts

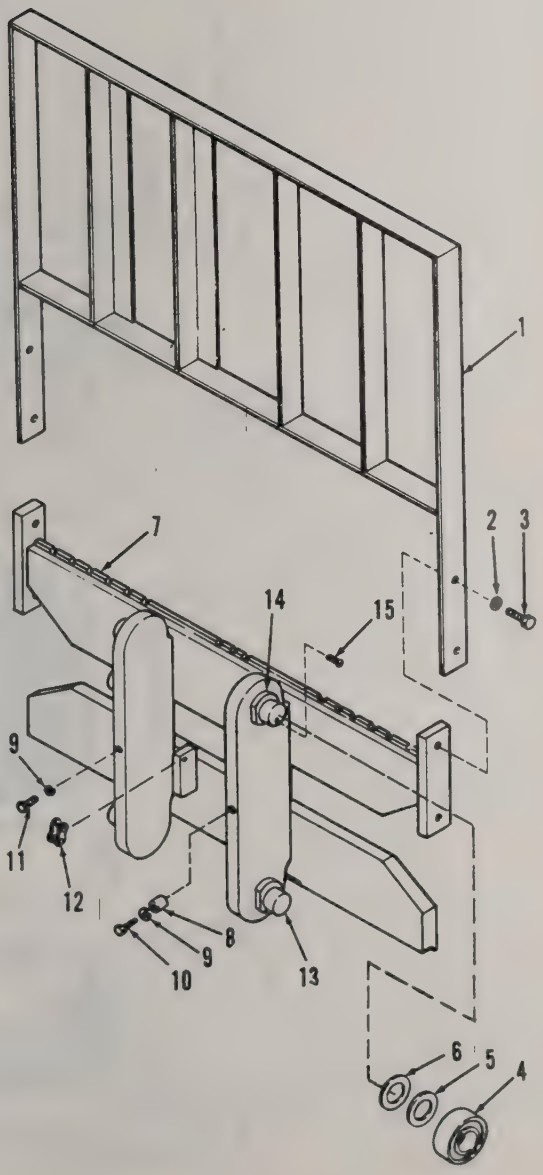

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Figure 28. Backrest and carriage

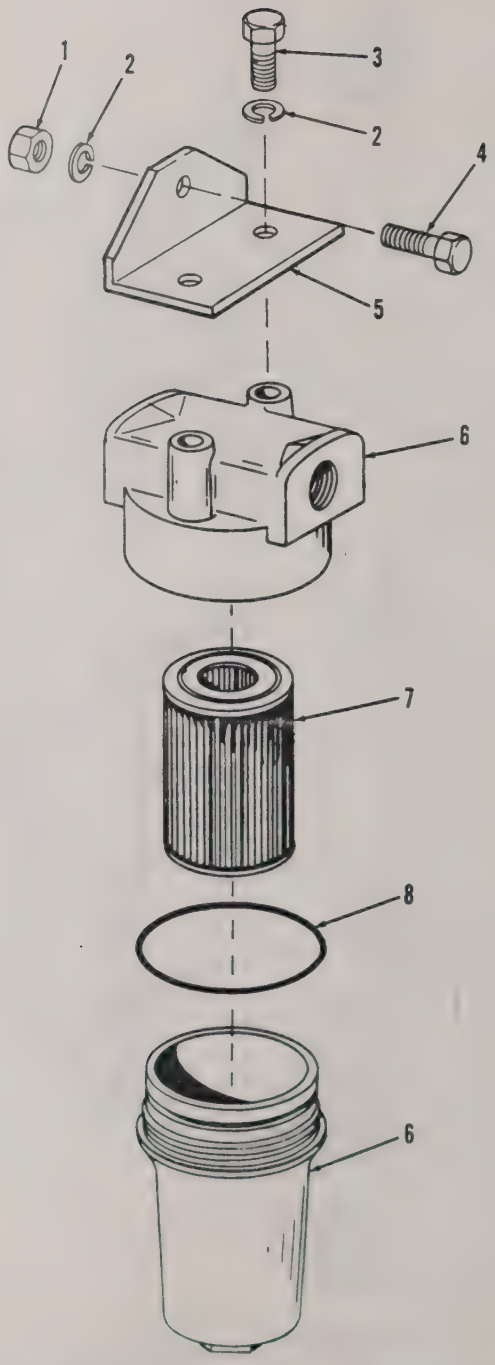

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Figure 29. Hydraulic filter and associated parts

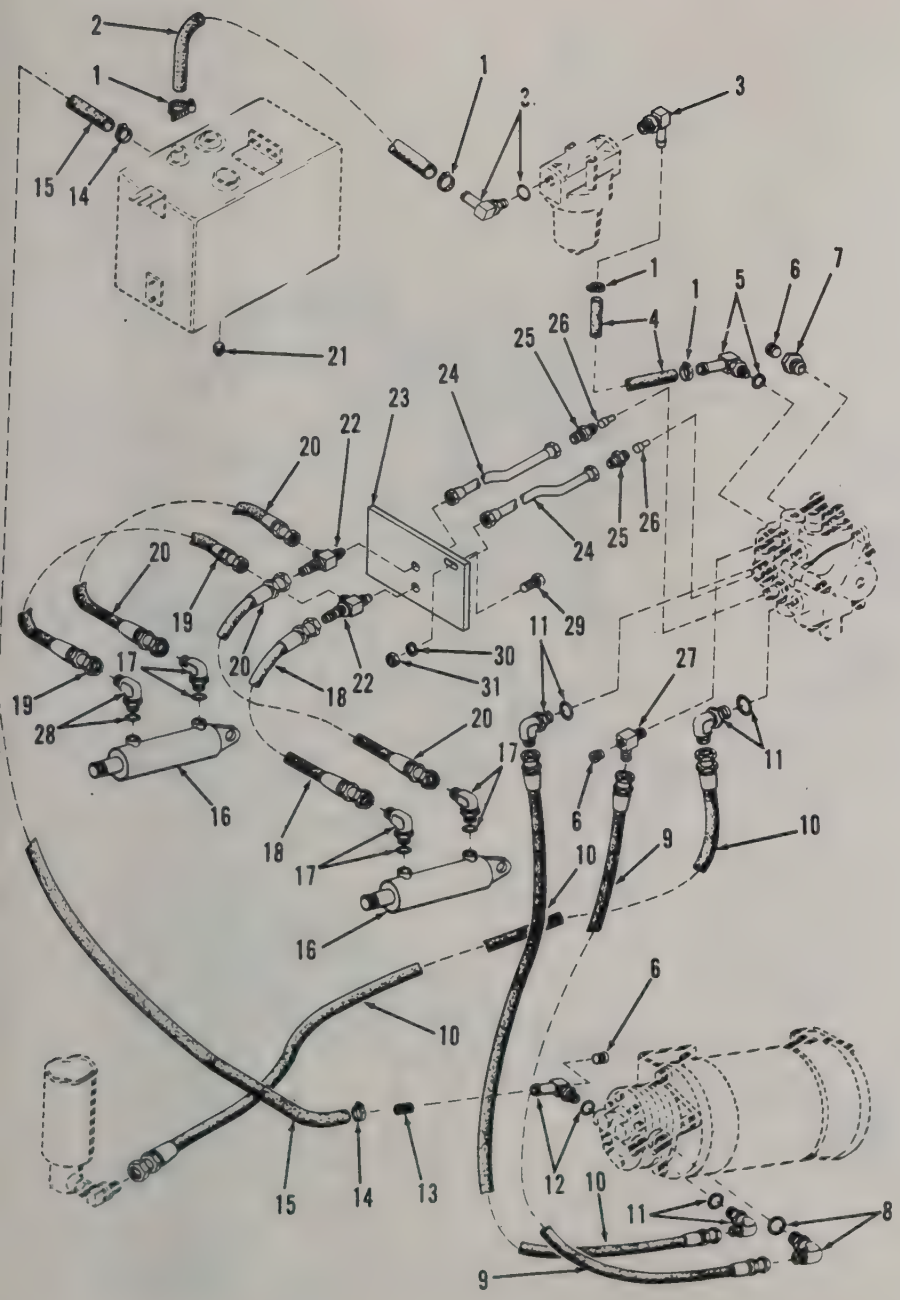

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Figure 30. Hydraulic lines and associated parts

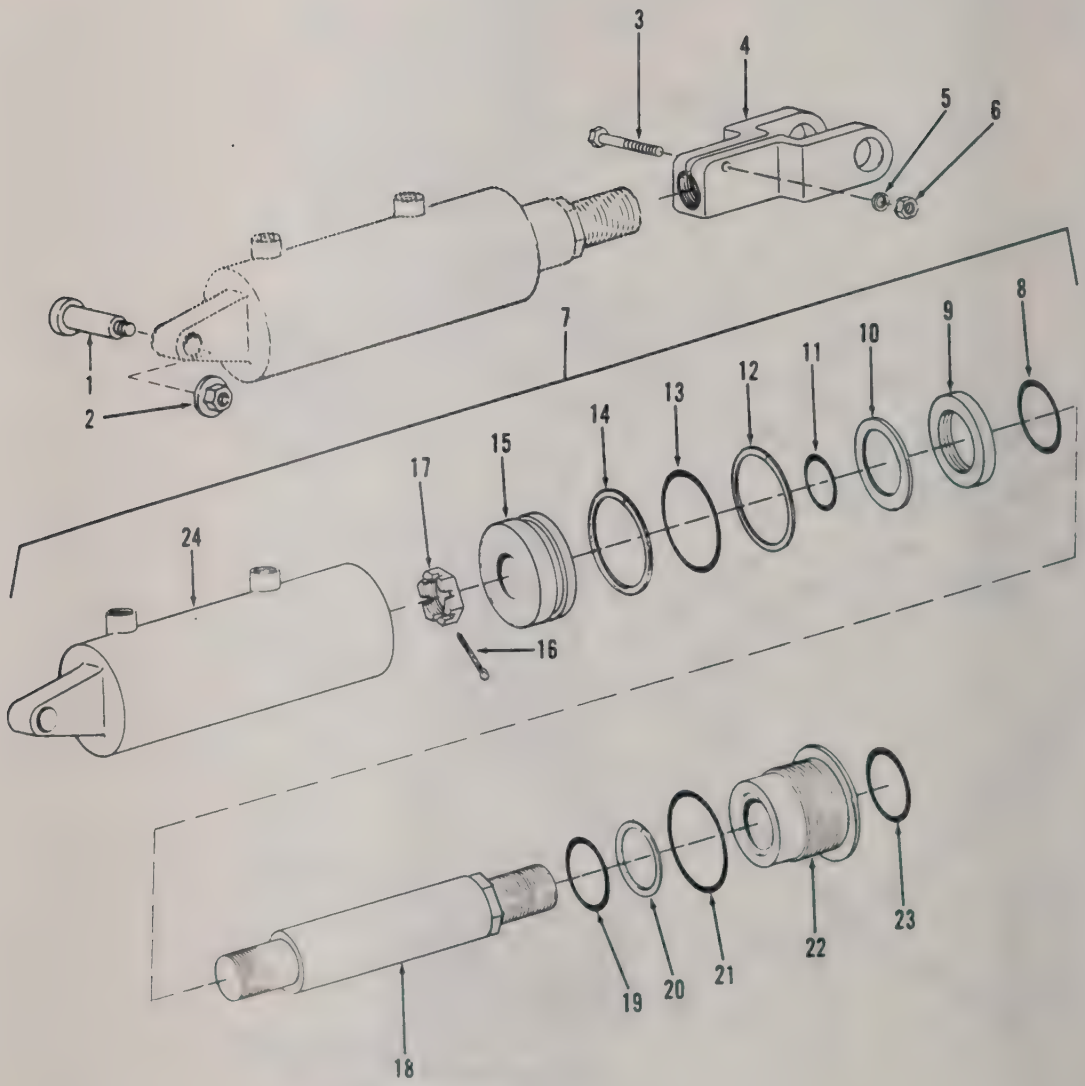

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Figure 31. Tilt cylinder and associated parts

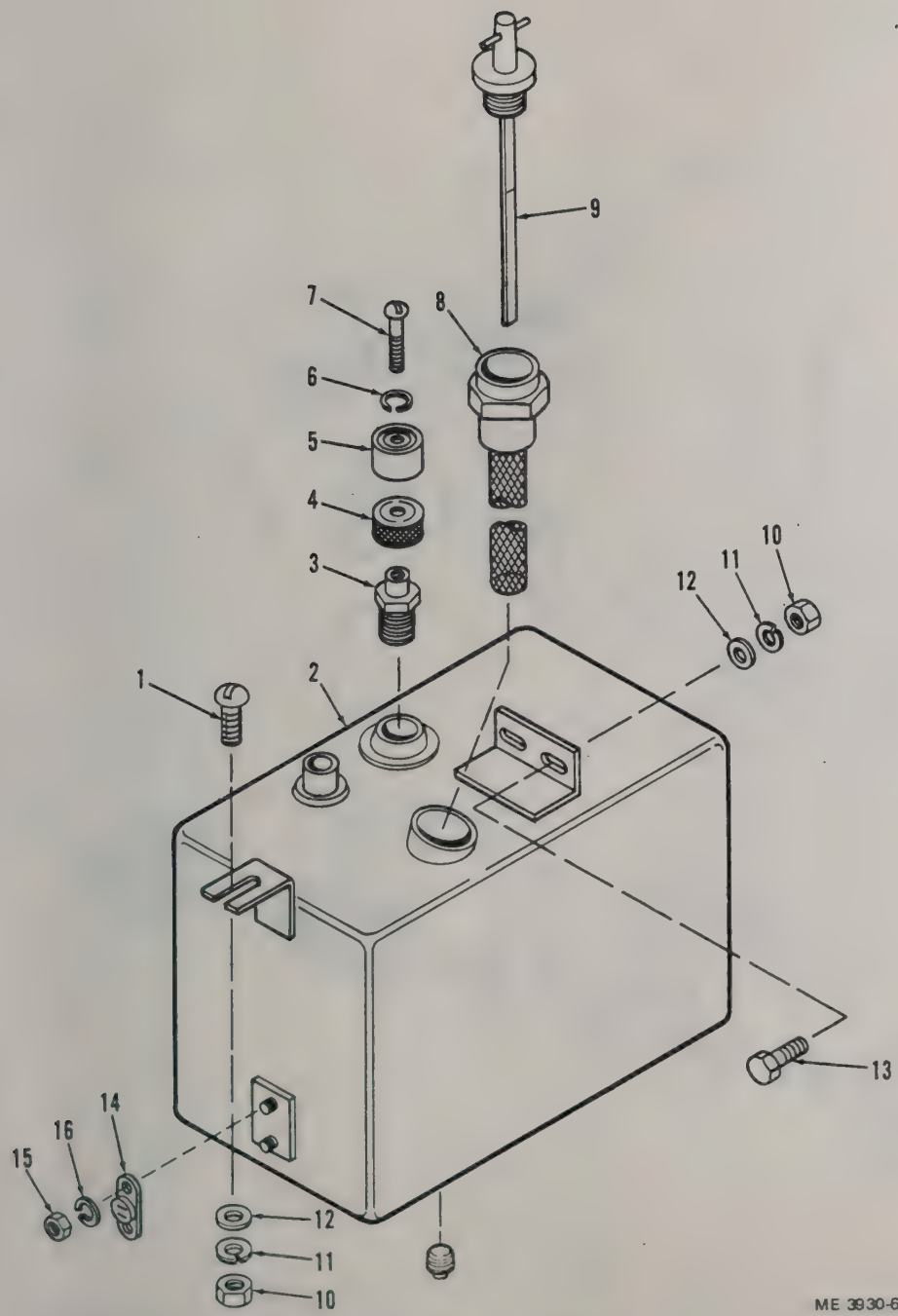

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Figure 32. Hydraulic oil reservoir assembly

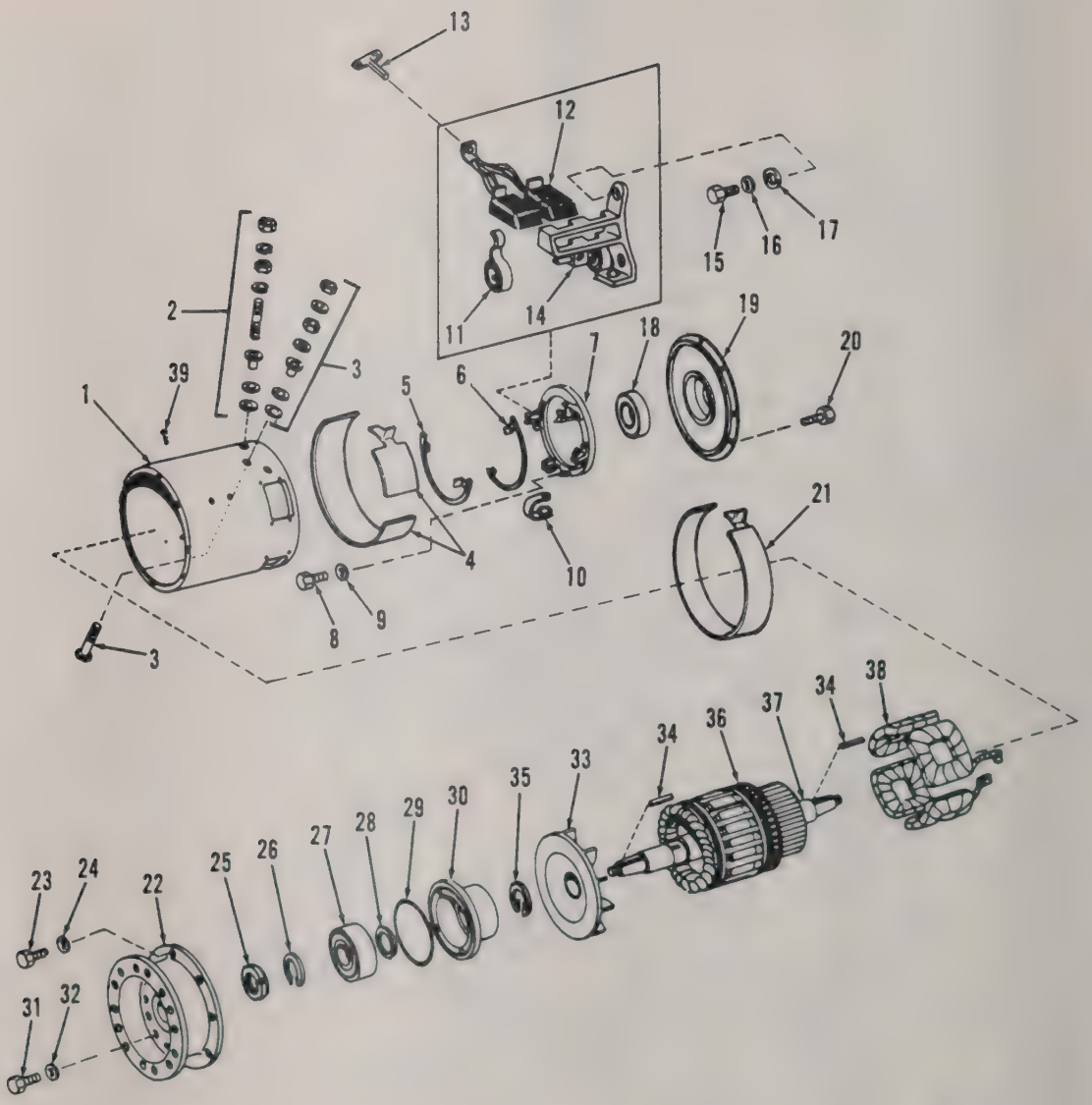

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Figure 33. Drive motor assembly

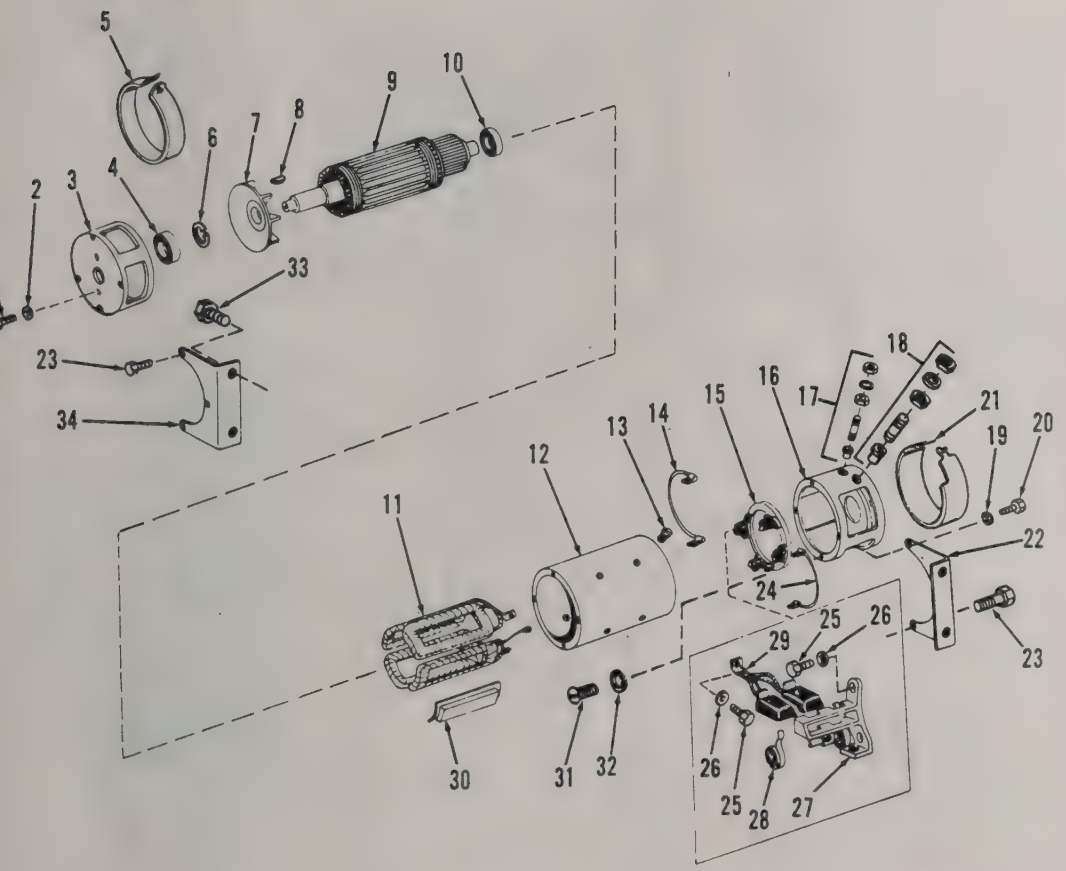

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Figure 34. Hydraulic pump motor assembly

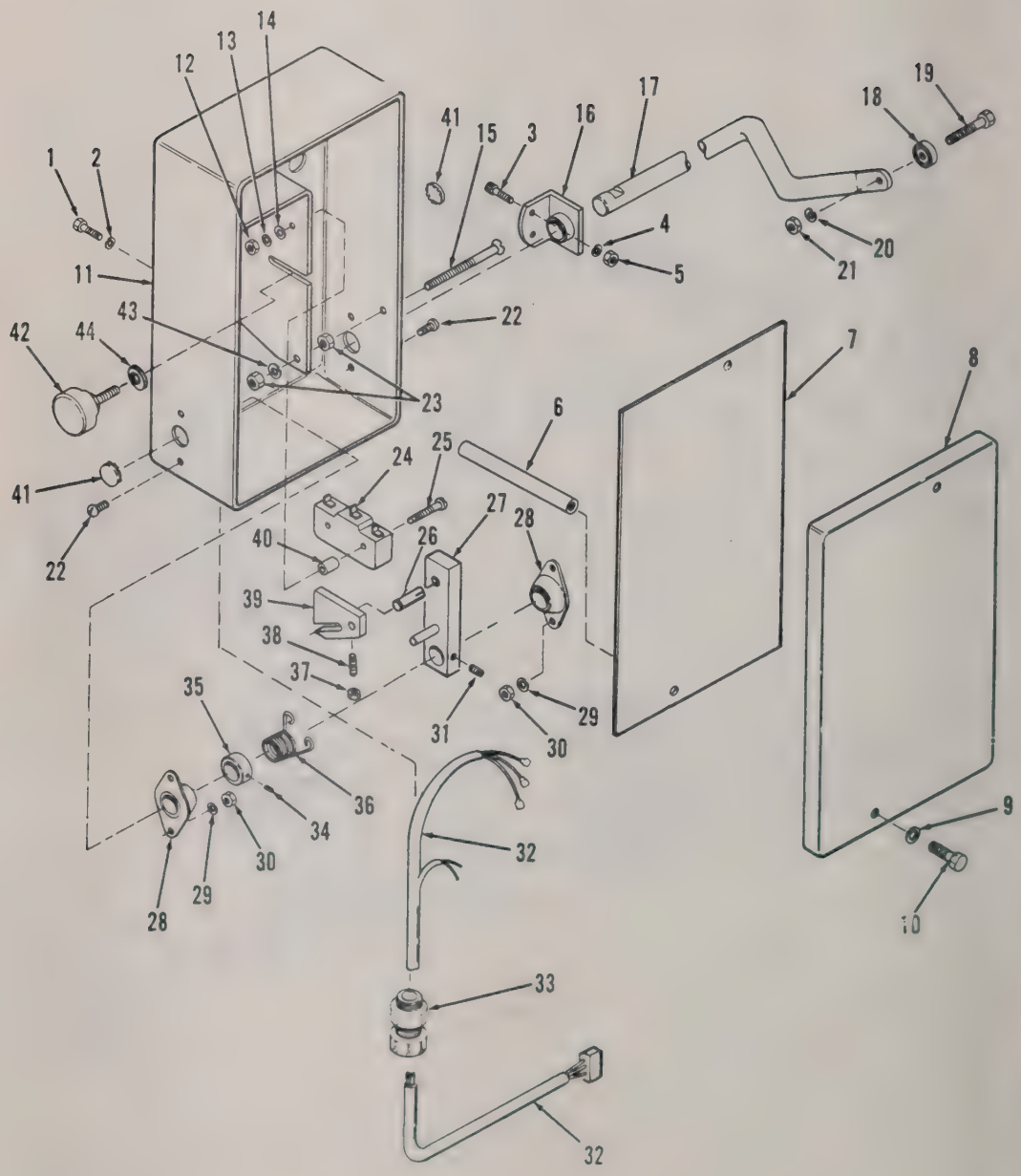

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Figure 35. Speed control assembly

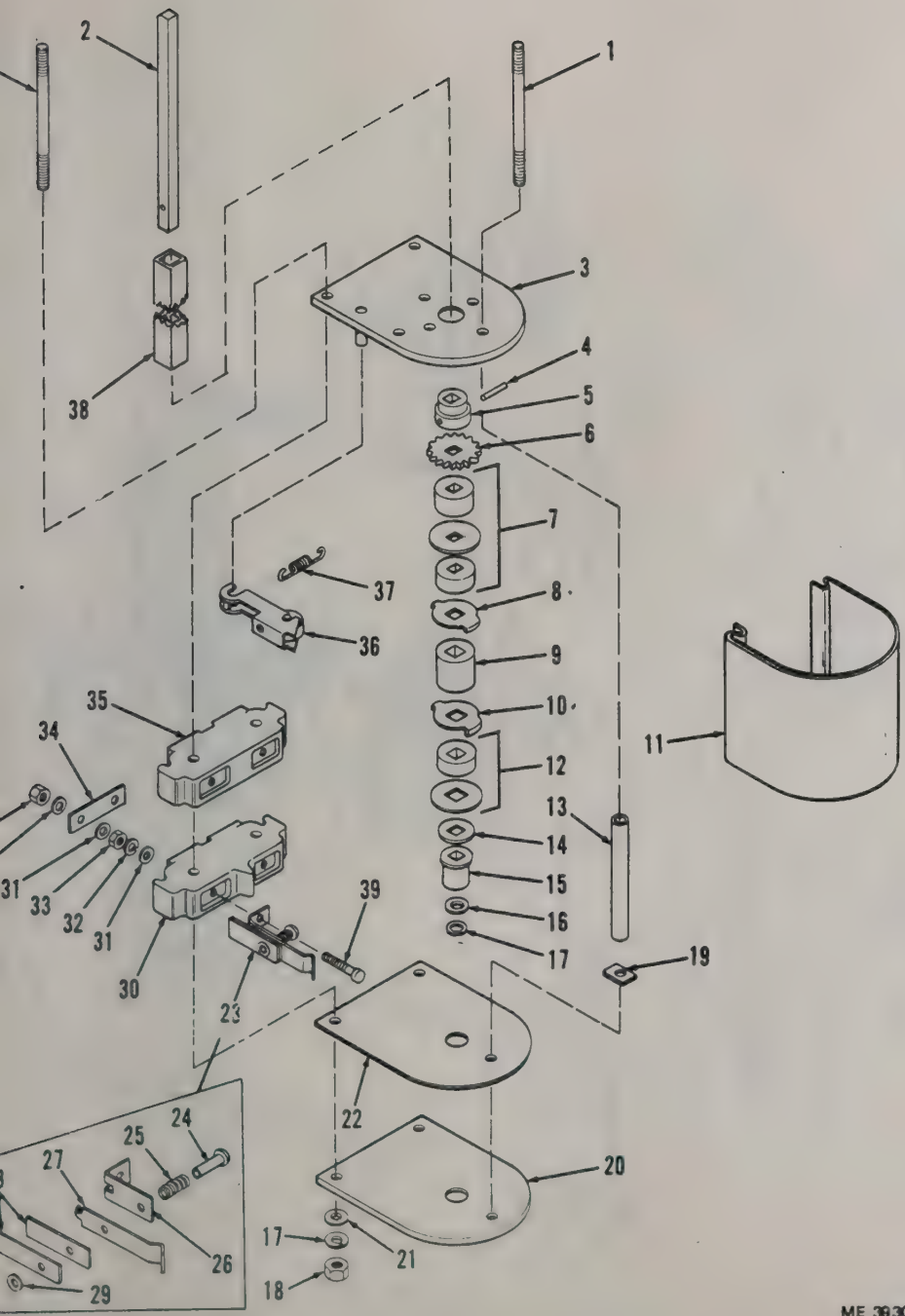

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Figure 36. Forward and reverse switch assembly

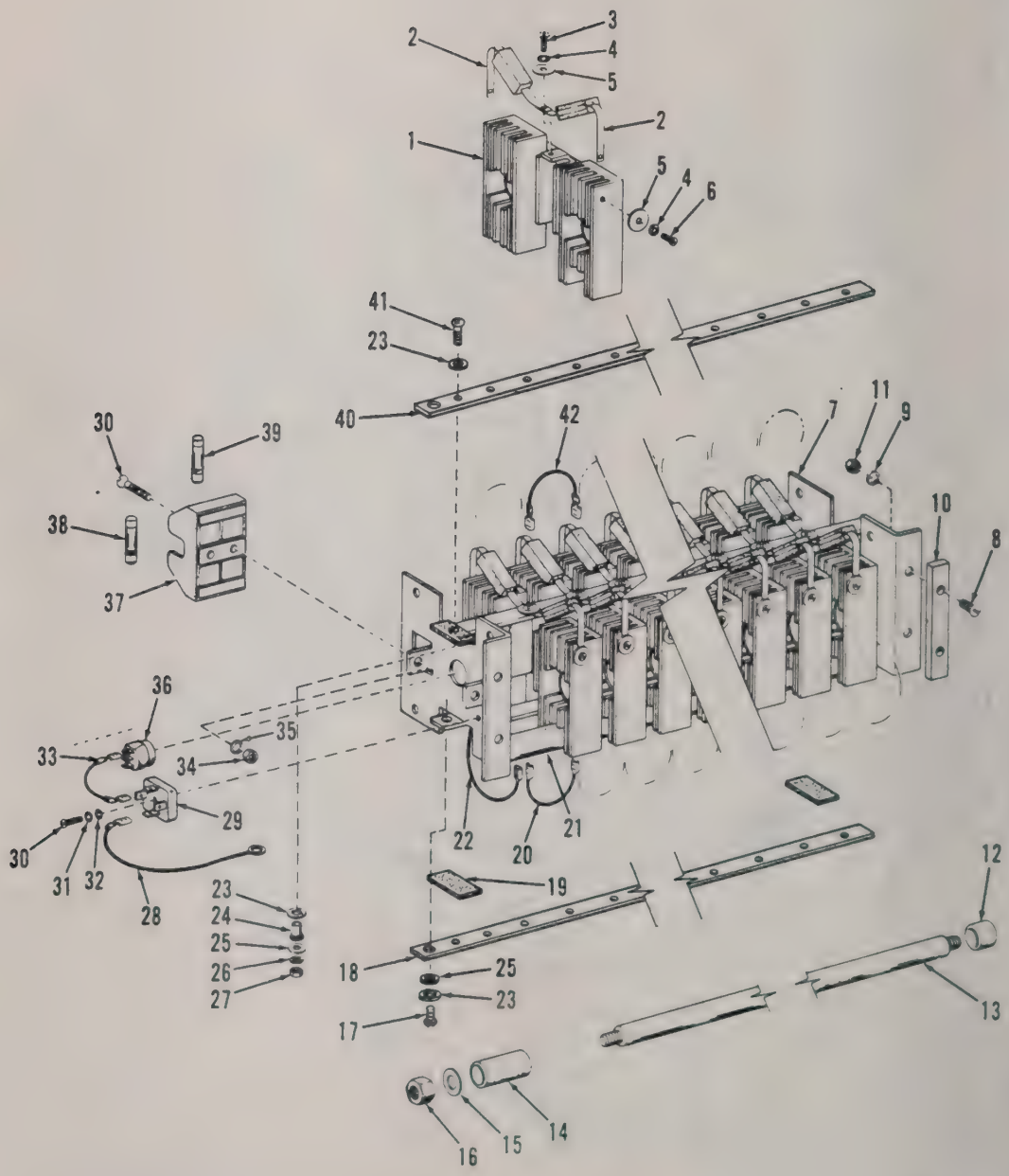

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Figure 37. Power switch assembly

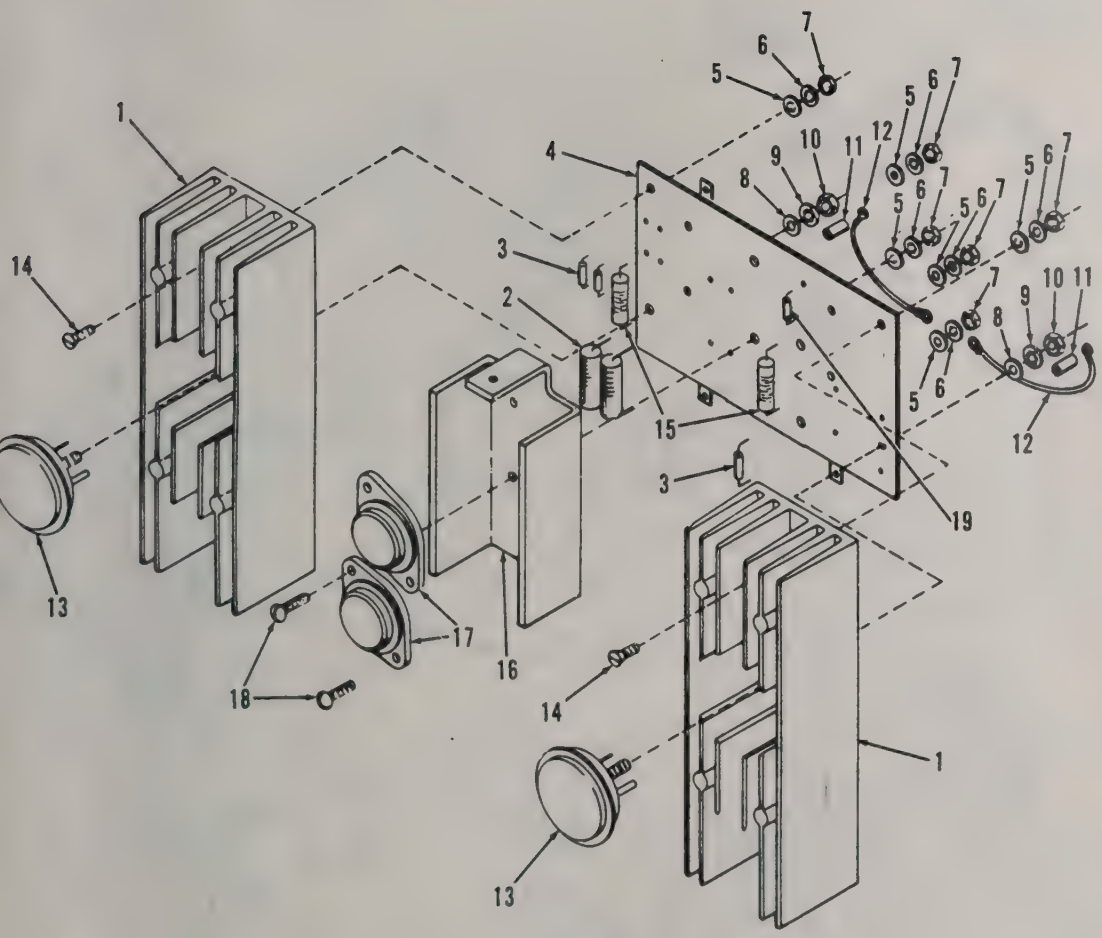

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Figure 38. Power switch module assembly

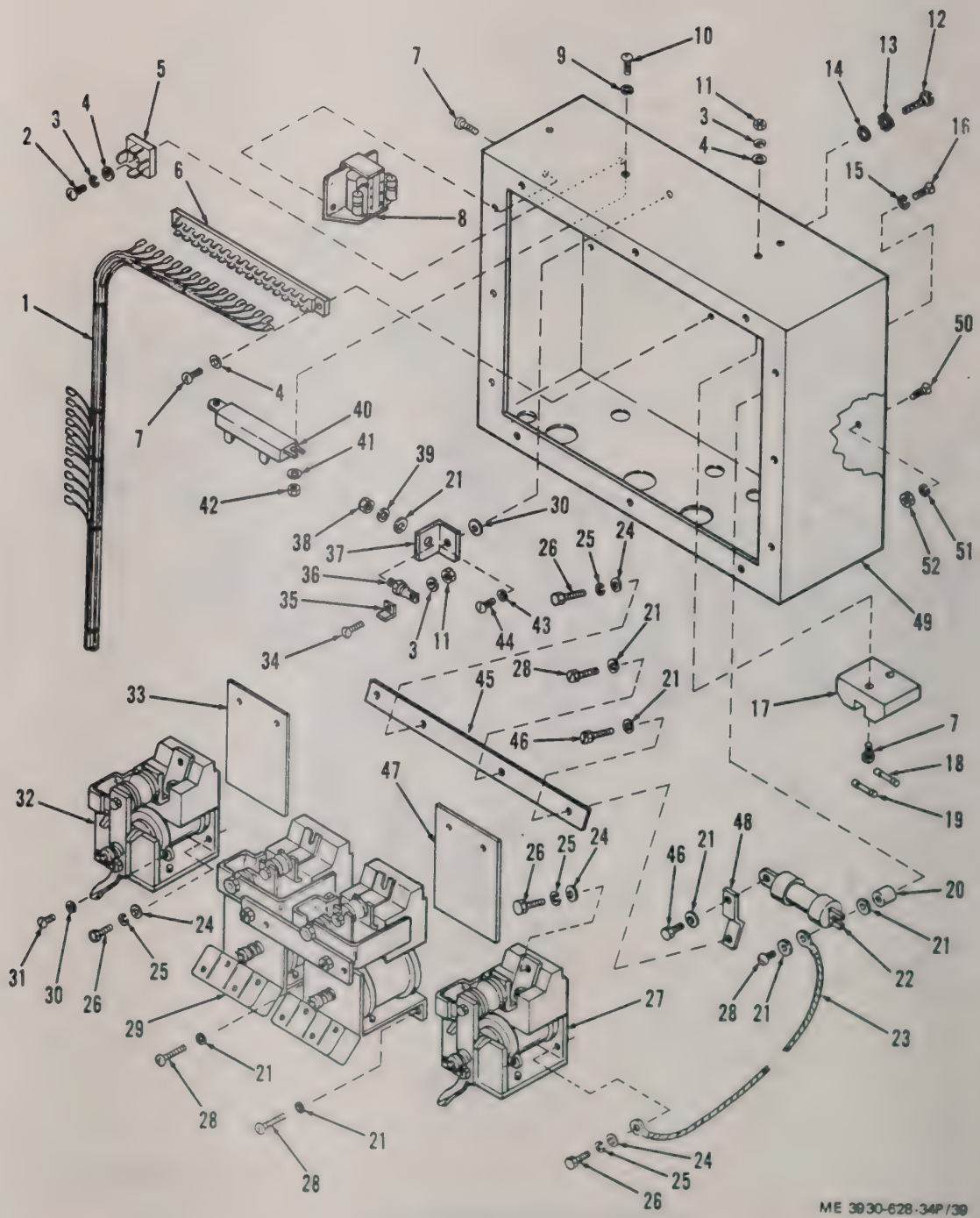

Figure 39. Contactor box assembly

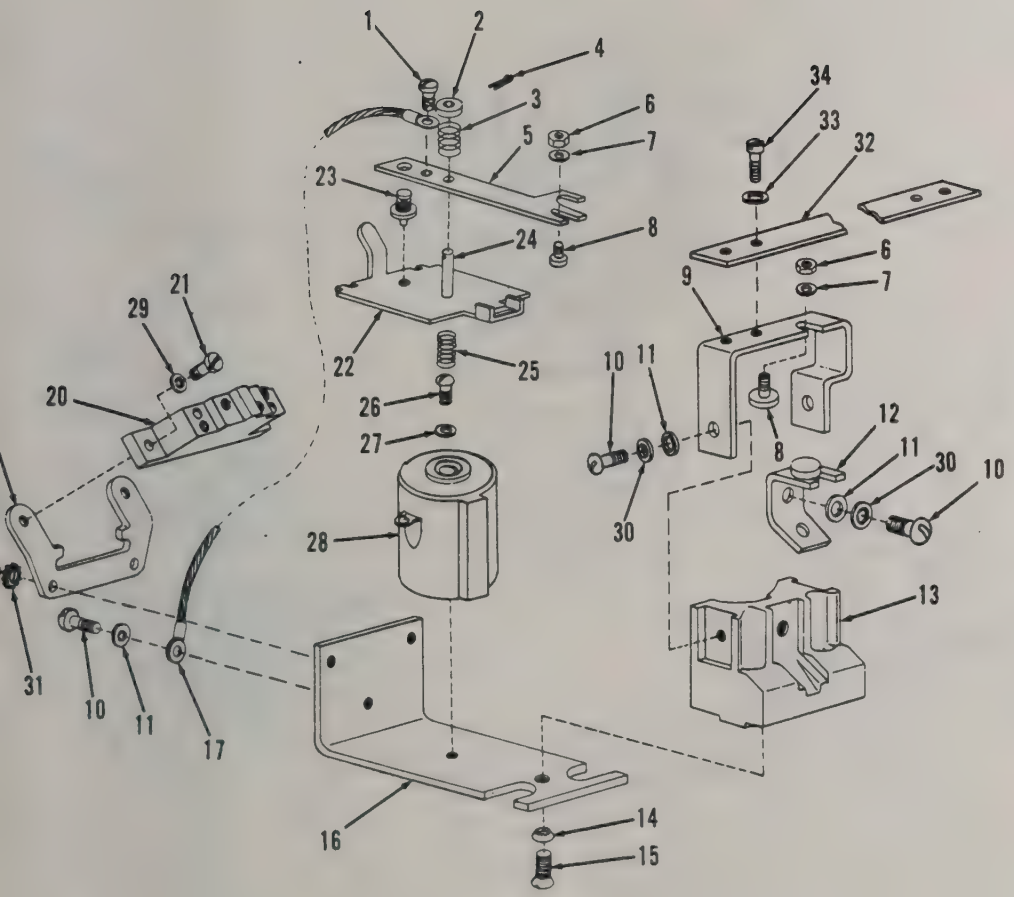

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Figure 40. Forward and reverse contactor assembly

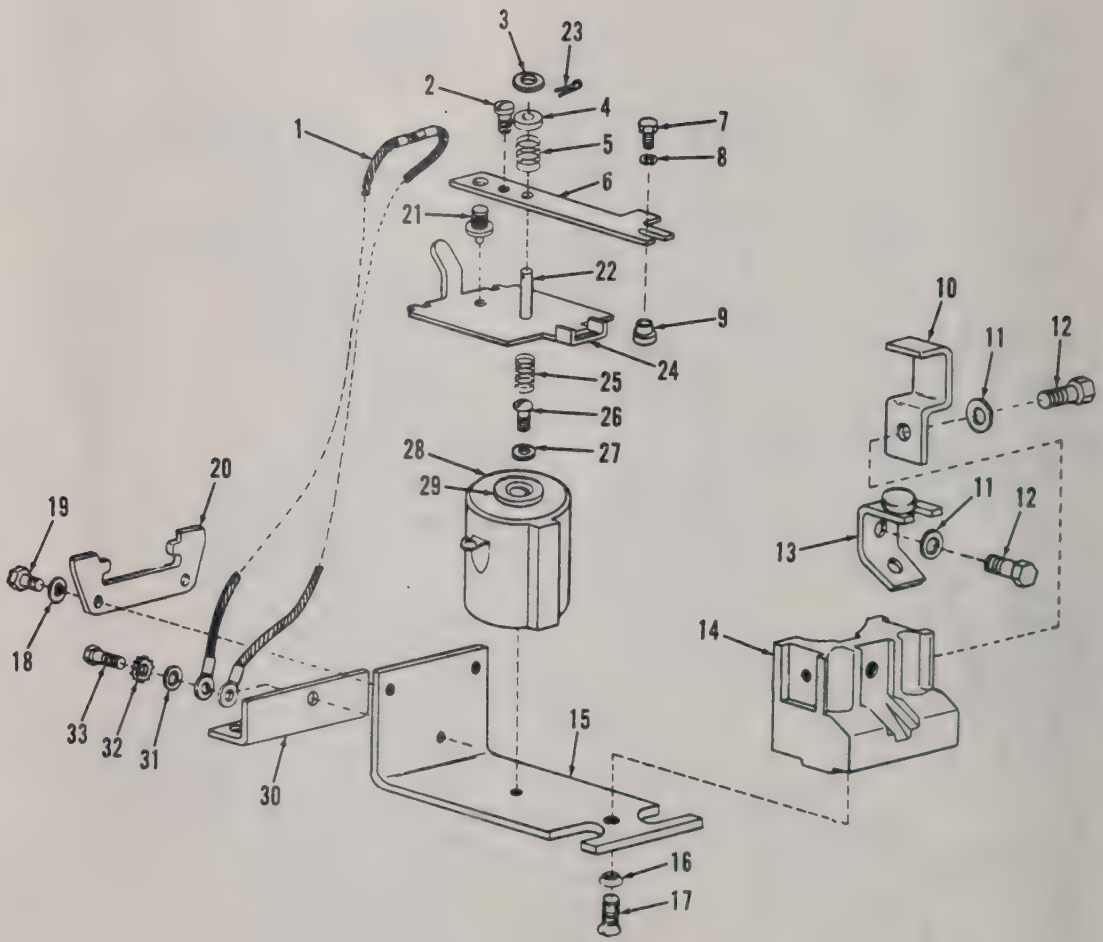

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Figure 41. Pump contactor assembly

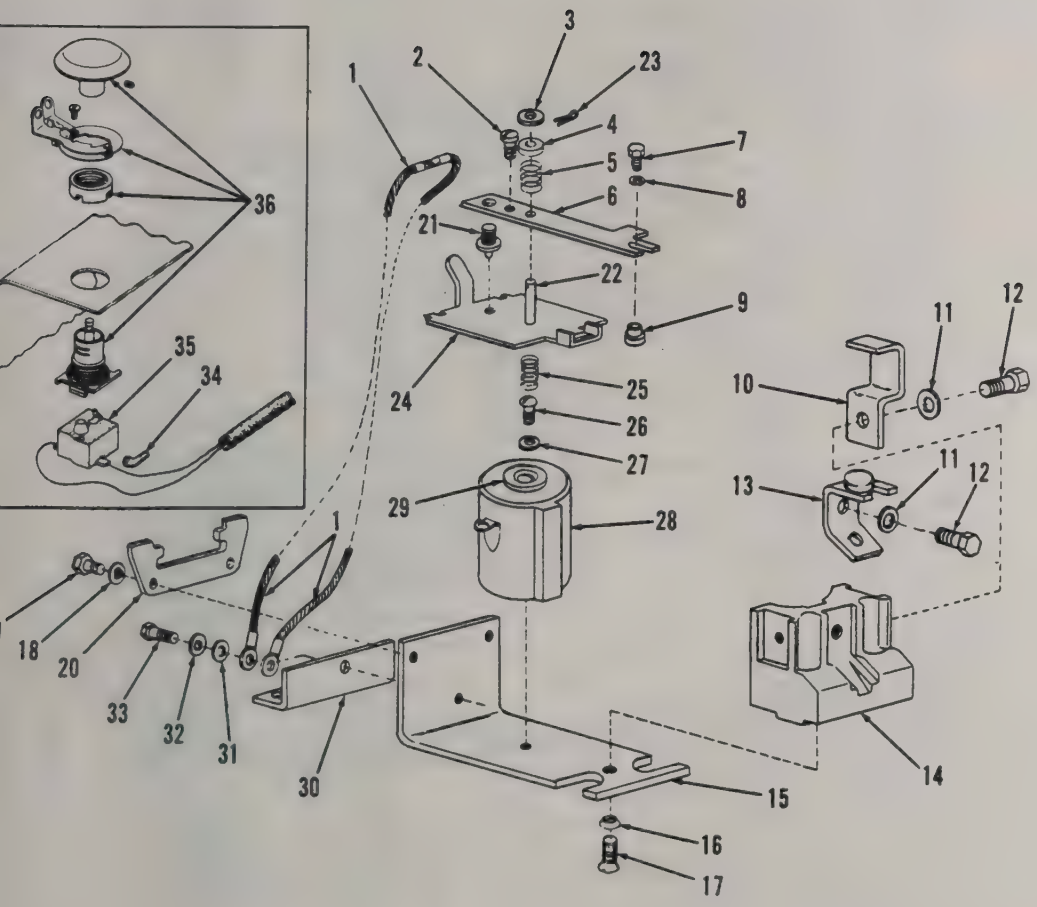

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Figure 42. Emergency cutout switch and contactor assembly

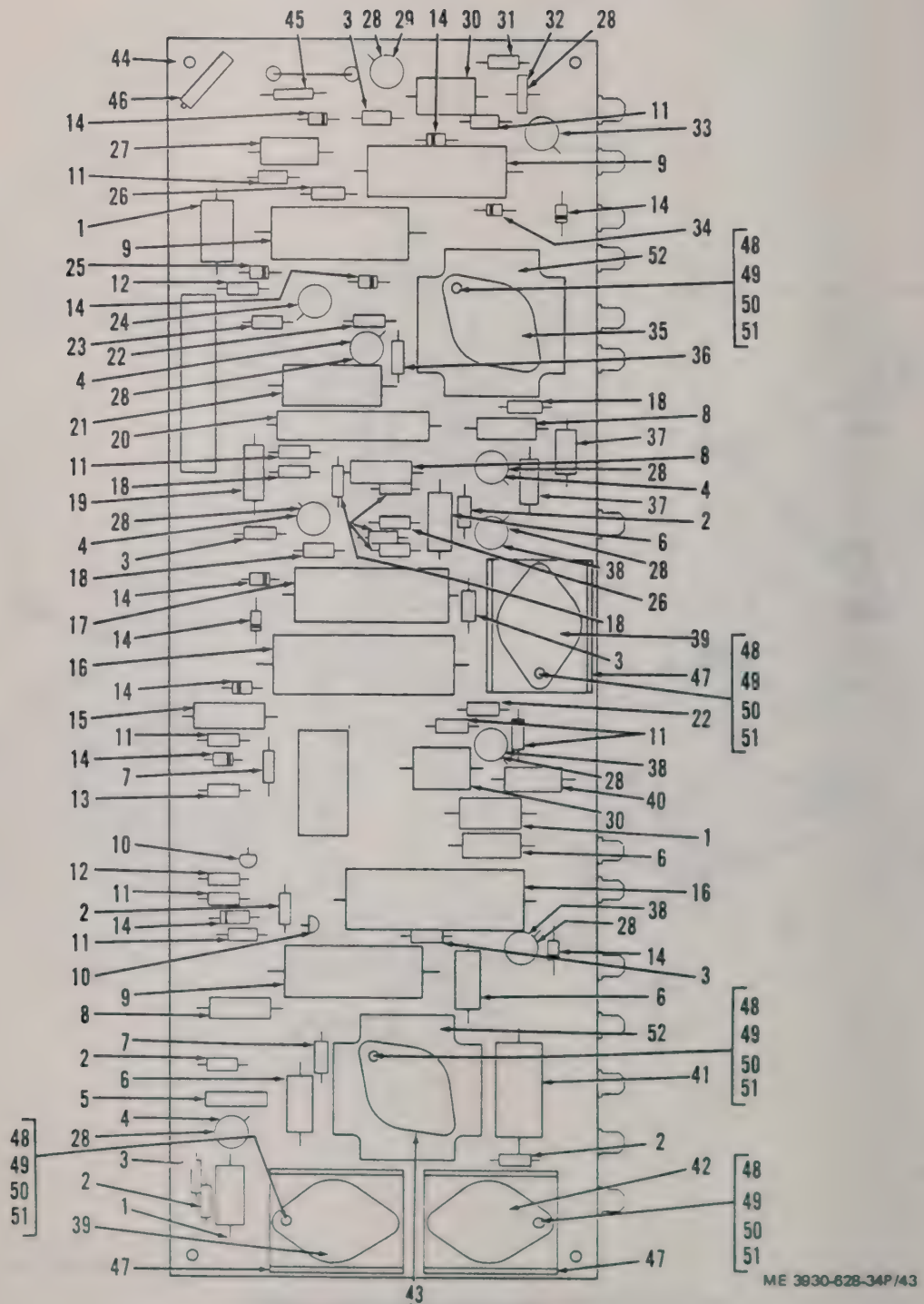

Figure 43. Control unit assembly

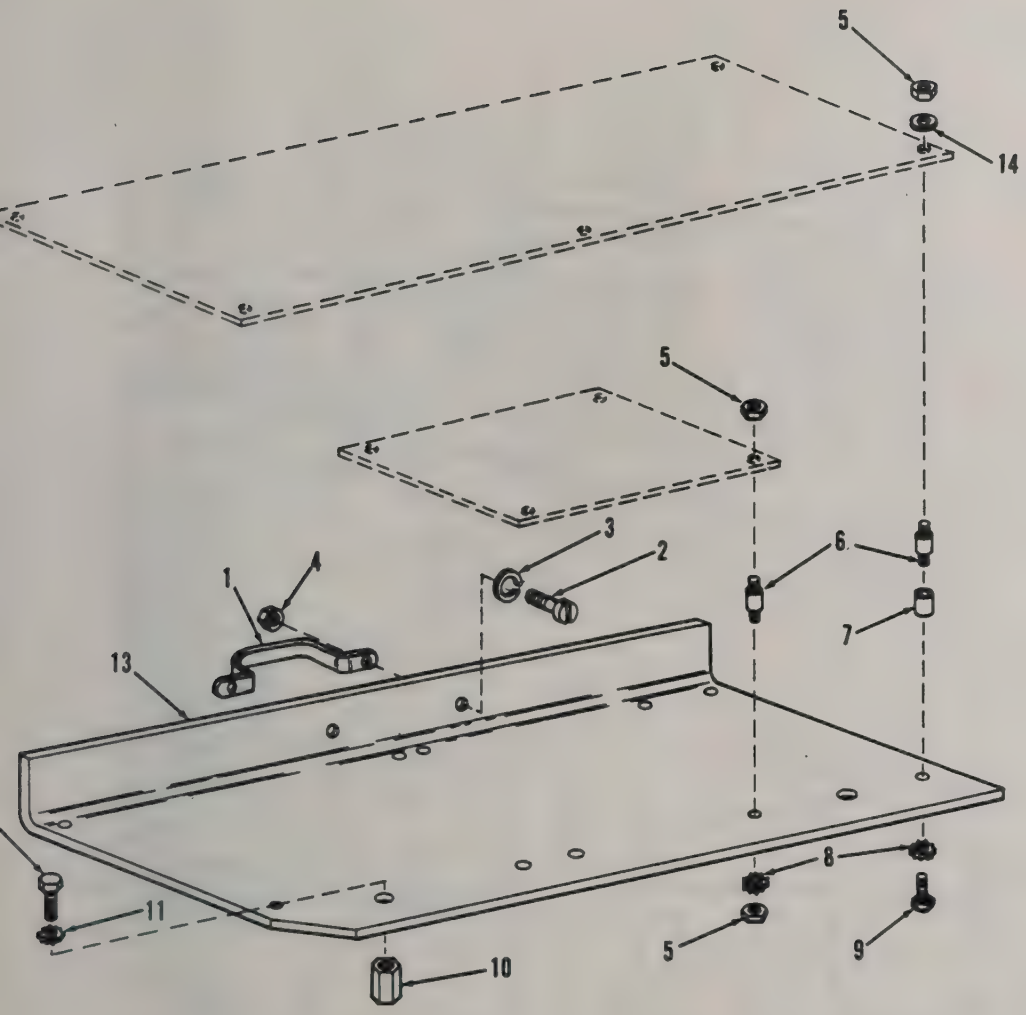

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Figure 44. Control board assembly.

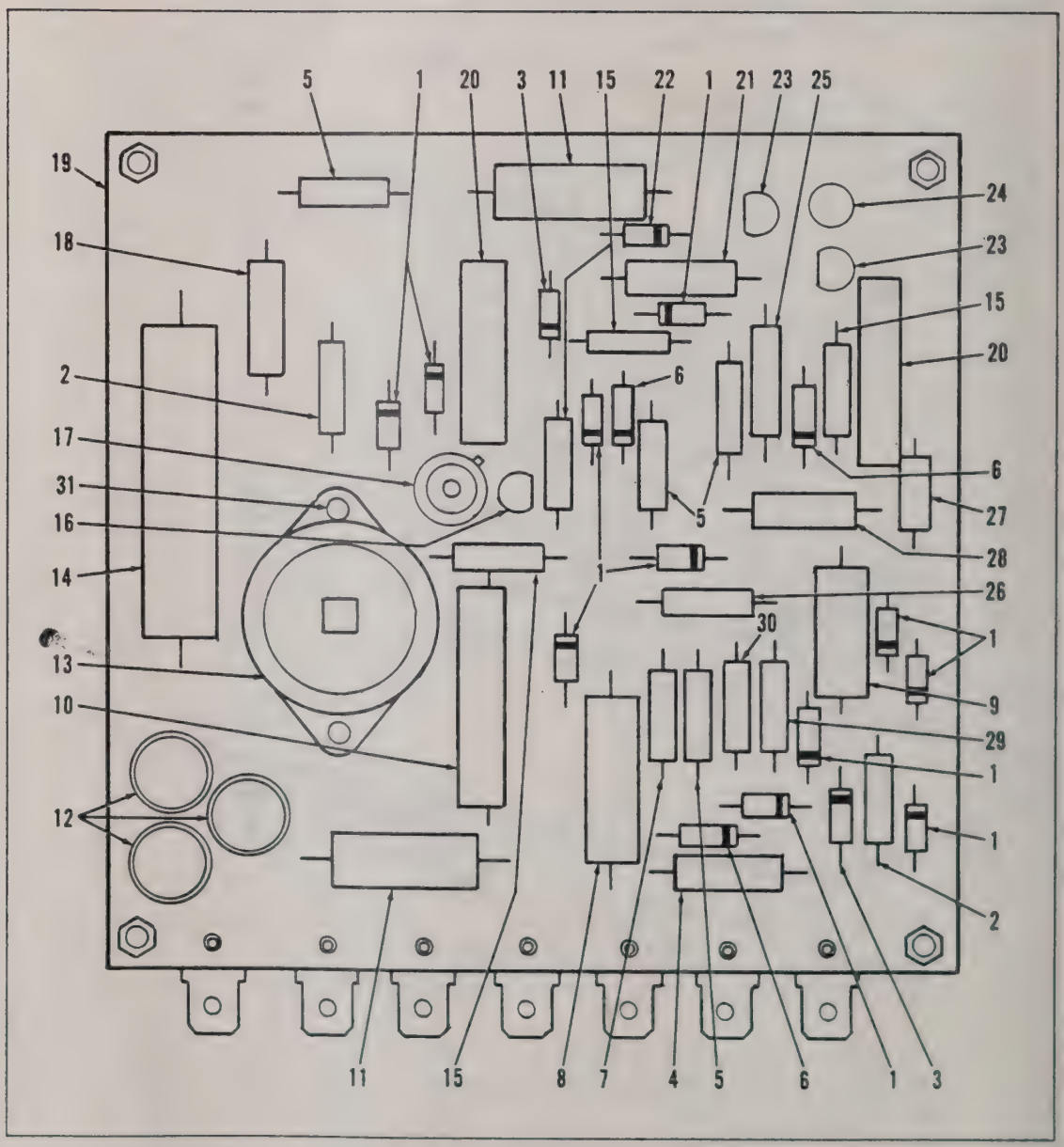

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Figure 45. Protective circuit board assembly

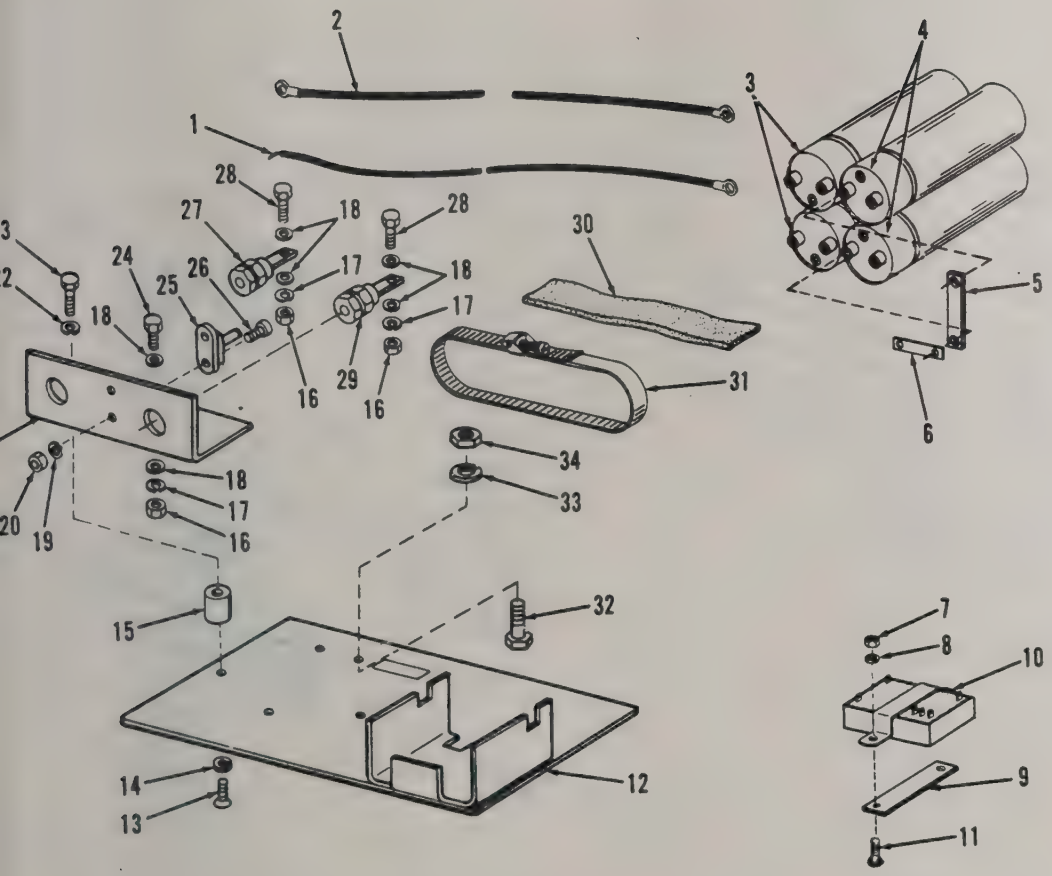

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Figure 46. Diode and capacitor assembly

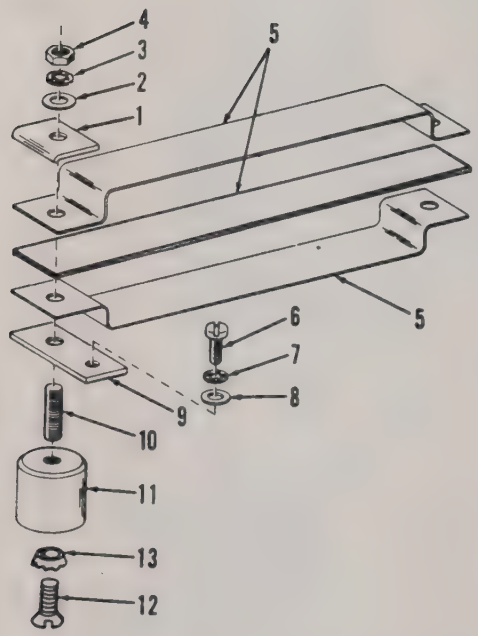

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Figure 47. Shunt assembly

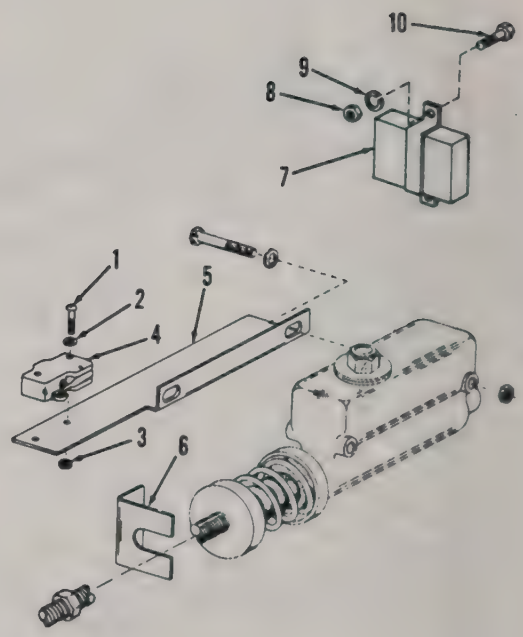

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Figure 48. Brake interlock assembly

K NUMBER	FIGURE NO	ITEM NO
-073-2609	5	2
-331-0353	6	27
-359-0146	6	39
-359-0195	6	34
-678-3698	6	9
-919-9776	6	3
	6	11
0-015-7080	11	19
0-043-5355	14	9
0-043-5451	14	7
0-044-2240	16	20
0-075-0152		
0-075-0157	7	9
0-097-3004	17	9
0-180-6867	11	9
0-230-9792	7	3
	15	3
	15	9
30-343-8161	12	5
30-359-0347		
30-382-8103	13	10
30-388-4830	11	12
30-411-3834	11	5
30-419-8813	11	4
30-432-7185	16	18
30-521-5672	10	26
	12	3
30-546-2433	7	4
	15	4
	15	8
30-580-7070	7	2
	15	2
530-597-0766	16	29
530-663-3879	11	13
530-714-3113	5	10
530-737-3260	11	11
530-737-4802	16	28
530-780-7070	15	10
530-834-5143	12	2
530-864-3893	12	15

STOCK NUMBER	FIGURE NO	ITEM NO
2540-101-4698	18	12
2540-358-4372	18	11
2590-215-4048	17	3
2590-253-7229	17	4
2590-371-3137	17	5
2590-374-0826	17	2
2590-612-2181	17	1
2590-737-3216	17	8
2630-811-5602	13	1
2920-725-3461	34	28
2930-294-9001	14	1
3020-359-9085	24	31
	28	12
3040-233-7974	27	7
3110-040-1916	16	27
3110-100-9865	5	21
3110-109-1155	34	10
3110-109-1179	34	4
3110-143-7571	5	22
3110-159-9382	7	17
3110-182-8632	24	6
	28	4
3110-182-8635	7	30
3110-183-6730	7	22
3110-185-6389	33	25
3110-227-2160	6	10
3110-516-5489	16	11
3110-586-8305	13	12
3110-586-8306	13	3
	14	2
3110-606-1840	14	4
	14	11
3110-678-1812	13	7
3110-686-1117	14	12
3110-727-6901	13	11
3120-237-6370	24	2
3130-133-6791	35	28
3930-019-1032	40	8
3930-019-1039	41	9
	42	9

STOCK NUMBER	FIGURE NO	ITEM NO
3930-019-1047		
3930-075-0159		
3930-078-5924	4	15
3930-451-4552	25	33
3930-451-4553	26	34
3930-451-4555	24	41
3930-451-4556	24	1
3930-451-4557	21	24
3930-727-5189		
3930-807-6667	32	38
4330-477-8280	29	7
4720-043-5452	30	4
4720-232-5745	30	20
4730-044-4861	30	6
4730-050-4205	24	50
4730-050-4207	7	6
4730-102-9714	10	23
4730-127-2624	5	36
4730-138-3910	30	27
4730-172-0034	7	35
	24	56
4730-221-2138	16	12
4730-223-6421	7	23
4730-250-7903	15	12
4730-289-5176	5	38
4730-737-5440	12	1
4730-808-6849	5	37
4730-811-1848	30	17
4730-908-3193	30	14
4730-908-3194	30	1
4820-349-9089	23	
	23	
5303-054-6654	18	47
5305-014-9921	17	7
5305-042-6417	19	4
	24	28
	29	4
5305-042-9479	18	42
5305-044-4153	18	30
	29	3

STOCK NUMBER	FIGURE NO	ITEM NO
5305-044-5503	28	3
5305-050-9229	1	16
5305-054-6654	1	12
5305-054-6660	35	25
5305-059-3657	35	22
5305-068-0498	41	2
	42	2
5305-068-0500	5	14
	9	21
	14	5
	35	10
	41	12
	42	12
5305-068-0501	41	33
	42	33
5305-068-0502	7	41
	18	6
	18	73
	33	8
5305-071-1313	23	28
	23	59
5305-071-1315	9	7
	18	23
5305-071-1767	2	21
5305-071-1769	31	3
5305-071-1772	7	12
5305-082-6739	32	1
5305-151-8682	5	4
5305-151-8683	25	10
	26	2
5305-225-3839	1	1
	18	81
	30	29
5305-225-8494	44	12
5305-225-8496	6	29
	39	26
5305-225-8497	5	12
	34	1
	34	23
5305-225-8499	24	37
5305-225-8499	33	23
	46	32
5305-225-8502	10	14
5305-225-8506	6	41
5305-225-8514	21	27
5305-226-7768	24	11
5305-237-8029	16	26
5305-269-2800	8	31
5305-269-2803	21	28
5305-269-2807	34	33
5305-269-3209	13	8
5305-269-3210	11	14
	24	63
5305-269-3211	5	17
	21	15
5305-269-3212	35	19
5305-269-3213	6	19
	24	47
	32	13
5305-269-3214	22	24
	24	60
5305-269-3216	13	6
5305-269-3221	10	22
5305-411-0682	48	1
5305-514-7506	37	6
5305-543-4662	33	13
	33	15
	34	25
5305-579-2139	40	21
5305-614-0245	34	31
5305-616-5522	33	31
5305-638-9837	2	10
5305-701-5078	22	15
5305-704-5910	24	64
5305-724-5911	28	10
5305-725-4098	24	10
5305-725-4187	16	35
	24	12
5305-763-7829	33	39
5305-763-7831	34	13
5305-782-9494	28	11
5305-798-9380	34	20
5305-889-3001	37	3
	37	30
	39	2
5305-890-3378	35	34
5305-926-5666	35	38
5305-947-0176	19	2
5305-957-6649	39	16
5305-958-5245	1	9
5305-958-5247	35	3
5305-958-5248	20	4
5305-958-5253	35	1
5305-958-5254	24	16
5305-958-5270	18	36
5305-958-5469	4	1
	46	11
5305-958-5473	44	9
5305-958-8995	7	34
5305-959-2722	1	28
	16	31
	37	8
5305-959-2723	18	54
5305-983-5346	11	17
5305-983-8084	23	37
	23	49
5305-984-5674	18	10
	18	27
5305-984-5676	9	4
5305-984-6191	39	10
5305-984-6193	47	6
5305-984-7363	40	15
	41	17
	42	17
5305-990-6444	18	34
	37	17
	44	2
5305-993-1848	39	12
5305-993-1851	37	41
5305-995-3441	41	26

STOCK NUMBER	FIGURE NO	ITEM NO
05-995-3441	42	26
05-995-3442	40	26
06-225-8497	24	13
06-225-8513	21	26
06-225-9087	33	20
06-225-9088	20	[illegible]
06-225-9091	9	25
06-225-9095	16	1
10-014-5850	3	21
	33	17
	34	26
	37	5
	37	25
	39	24
	41	27
	42	27
310-045-3296	18	35
	22	14
	33	16
	34	32
	36	32
	44	3
5310-045-3299	32	16
5310-045-4007	1	17
	18	49
	35	13
	35	29
	40	29
	48	[illegible]
5310-068-0502	46	23
5310-080-6004	9	34
	35	44
5310-080-6005	[illegible]	27
	10	9
	32	12
	46	18
5310-081-4219	1	26
	4	2
	9	14
	22	18

STOCK NUMBER	FIGURE NO	ITEM NO
5310-082-1404	35	14
5310-087-7493	9	26
	10	13
	18	69
5310-088-0553	9	8
5310-088-7744	9	16
5310-126-5258	5	24
5310-151-5483	5	23
5310-167-0721	16	3
	39	43
5310-168-7350	7	29
5310-168-7354	5	25
5310-194-9209	41	16
	42	16
5310-194-9211	1	10
	39	15
	46	14
	47	13
5310-194-9212	35	2
5310-209-0786	9	12
	18	22
	33	9
5310-209-0965	6	16
5310-209-1962	18	56
5310-209-5116	37	31
5310-225-6993	2	23
5310-240-1008	1	8
5310-261-7340	18	57
	21	16
	21	29
	22	25
	46	17
5310-274-8879	18	7
5310-275-3683	10	21
5310-275-6635	12	4
5310-407-9566	1	25
	2	19
	4	3
	5	3
	5	11

STOCK NUMBER	FIGURE NO	ITEM NO
5310-407-9566	6	24
	[illegible]	28
	10	18
	11	18
	20	8
	24	14
	24	39
	33	24
	34	2
	37	9
	39	25
	46	33
5310-410-3109	16	30
5310-509-5998	[illegible]	11
	22	7
5310-514-6674	9	15
	10	12
	18	17
	44	11
5310-550-0286	44	8
5310-550-1130	39	39
	42	8
5310-550-3714	37	35
5310-559-0070	47	7
5310-576-5752	1	22
	37	23
	38	9
	39	13
5310-579-0079	37	4
5310-579-1031	22	23
5310-582-5965	1	2
	4	25
	5	15
	9	20
	14	6
	18	3
	18	63
	18	79
	30	30
	34	19

STOCK NUMBER	FIGURE NO	ITEM NO
5310-582-5965	35	4
	40	30
	41	32
	42	32
	46	8
	46	22
5310-584-5272	10	8
	16	32
	18	31
	19	5
	29	2
	31	5
5310-584-7888	7	32
	18	45
	19	3
5310-584-7889	35	9
5310-584-7931	15	7
5310-595-7237	13	9
	37	15
5310-596-7691	40	31
5310-637-9541	5	18
	6	18
	11	15
	13	5
	24	48
	24	58
	24	62
	32	11
	33	32
	35	20
	39	51
5310-681-4219	6	25
5310-720-8819	2	2
5310-732-0558	10	20
	23	75
	32	10
	37	16
	39	52
5310-732-0560	7	16
5310-754-2005	7	15

STOCK NUMBER	FIGURE NO	ITEM NO
5310-754-2005	16	16
5310-761-6882	4	24
	9	13
	18	2
	18	64
	18	80
	30	31
	35	5
	46	7
	48	8
5310-763-8905	24	33
5310-763-8921	18	46
5310-765-3197	39	41
5310-768-0318	16	33
	19	6
	29	1
	31	6
5310-780-8398	24	7
5310-809-3078	18	8
	35	43
5310-809-4058	9	19
	20	5
	39	21
	40	33
	47	2
5310-809-8533	24	46
5310-809-8540	5	33
5310-809-8541	14	10
5310-809-8544	39	30
5310-809-8546	21	30
	39	14
	40	7
5310-820-6653	24	9
	28	2
	28	9
5310-823-8804	18	62
	40	11
	41	11
	42	11
5310-834-8732	9	31

STOCK NUMBER	FIGURE NO	ITEM NO
5310-834-8734	6	17
	16	34
5310-835-2036	10	2
5310-838-1702	7	33
5310-842-1190	7	8
5310-842-7783	6	4
5310-851-2674	7	42
	35	21
	35	37
	39	38
5310-851-2682	2	26
5310-853-9335	9	23
	22	11
5310-880-6004	16	21
5310-880-7744	1	24
	4	4
	6	23
	10	19
	18	58
	23	77
	24	40
	24	57
	35	23
	37	11
	46	16
5310-880-7746	16	4
	20	7
5310-899-9151	10	7
5310-934-9747	1	18
	18	50
	35	12
	37	34
	38	7
	39	11
	43	51
	48	3
5310-934-9751	35	30
	37	27
5310-934-9757	32	15
5310-934-9758	22	13

K NUMBER	FIGURE NO	ITEM NO
)-934-9759	44	5
)-943-2141	16	25
)-945-2518	5	35
)-951-7209	18	44
)-958-5270	18	59
)-971-7990	16	17
)-983-8483	37	32
)-983-8493	43	50
)-988-5910	11	2
)-997-1888	47	4
5-011-9120	7	5
5-012-0123	7	18
5-012-0128	6	5
5-013-7228	31	16
5-151-8724	24	45
5-151-8725	24	49
5-151-8733	18	13
5-276-5160	6	7
5-298-1481	15	11
5-298-1499	14	8
5-616-5522	33	34
5-785-1807	18	43
15-815-8840	9	27
15-839-2325	41	23
	42	23
15-842-3044	9	28
	18	68
15-844-3965	11	16
	24	23
	35	31
15-844-5836	7	20
15-849-9854	5	31
15-849-9857	24	44
30-291-6658	12	6
30-739-3160	5	20
	5	39
30-811-1058	24	52
30-842-8341	23	26
35-151-7138	30	13
40-191-6593	23	33

STOCK NUMBER	FIGURE NO	ITEM NO
5340-191-6593	23	65
5340-197-0385	7	21
5340-270-8553	35	41
5340-622-0866	16	2
5340-811-6643	9	2
	10	16
	22	6
5340-985-0823	9	22
5340-996-6568	3	19
5355-014-7778	2	25
5360-103-8823	24	27
5360-157-7372	23	40
	23	72
5360-157-7414	23	34
	23	66
5360-157-7417	23	5
	23	45
5360-157-7418	23	11
	23	51
5360-404-8333	20	11
5360-440-4933	11	20
5365-151-7128	24	5
	28	5
5365-151-7129	24	4
	28	6
5365-151-7130	7	24
5365-205-4207	33	35
5365-238-7382	16	22
5365-598-6355	18	14
5365-803-7309	33	26
5365-803-9976	34	6
5905-059-6321	43	13
5905-068-4448	38	3
5905-104-8353	45	18
5905-257-0926	45	4
5910-893-5179	45	8
5920-437-8450	39	19
5920-443-4079	37	38
5920-952-4080	39	22
5930-202-0878	48	4

STOCK NUMBER	FIGURE NO	ITEM NO
5930-253-1632	1	29
5930-499-1886	37	46
5930-636-2443	10	31
5930-723-5363	40	20
5930-733-4609	35	24
5930-758-5360	1	5
5940-843-1522	10	32
5961-260-4323	45	16
5961-841-9782	45	23
5975-291-1669	2	17
5975-478-6209	42	34
5977-446-4636	33	14
5977-935-6945	34	29
5999-138-3491	43	44
5999-256-5467	45	50
6105-426-0696	34	41
6140-789-7189	4	6
6220-682-8292	3	3
6240-299-3985	3	18
6645-088-5280	1	11

REFERENCE NUMBER	MFR CODE	FIG NO	ITEM NO
ACK250	71400	39	22
AC5314	87134	6	21
AJH3001X1/2	87946	10	17
AL4174	87946	35	16
AN363-518	88044	18	7
AN6230-1866-30	88044	33	29
A1994A	90005	32	5
A4663	87134	8	7
A4709A	87134	8	2
A5168	87134	8	5
A5384	87134	8	1
A5387	87134	8	6
A5437-2	87134	8	3
A5751	79410	6	39
BZ2RW822T	91929	48	4
B121204	80648	7	22
B565859	90005	32	3
CC0511	33544	2	18
C01013	33544	3	24
C30035-1420	78553	18	21
C575-1024-4	78553	1	23
C6U	01364	45	17
C8738-1420-1	78553	18	60
D22962	72210	15	1
D22993	72210	15	
D22993-6	72210	15	5
D22995	72210	15	6
EB1011	01121	38	19
EB1031	01121	45	5
EB1531	01121	45	26
EB2211	01121	45	2
EB2721	01121	45	15
	01121	45	30
EB4721	01121	45	27
EB5621	01121	45	29
EB8211	01121	45	7
EP2211	01121	38	3
FC10901C	63477	12	14
FC11065C	63477	12	15
FC11143	63477	12	11
FC1147C	63477	12	9
FC11596	63477	11	11
FC12103	63477	12	5
FC14297B	63477	12	12
FC17814	63477	5	10
FC2305	63477	11	6
FC2927E	63477	12	13
FC3163	63477	10	26
FC3474	63477	12	1
FC4637	63477	11	8
FC5353	63477		
FC6019	63477	12	6
FC602	63477	10	25
	63477	12	4
FC603	63477	10	27
	63477	12	2
FC673	63477	10	28
FC723	63477	11	9
FC724	63477	11	13
FC725	63477	11	10
FC7715	63477	10	31
FD11422	63477	12	8
FD470	63477	11	12
FE44492-0	63477	12	
FMN8	87946	35	28
F2108	63477	12	10
GB3321	01121	45	4
HB2201	01121	38	2
H22990	72210	7	1
IN1184	01364	39	36
IN270	81223	45	6
IN4002	81223	45	1
IN4733	81223	45	3
IN4997	81223	45	12
J	71590	35	42
J6984-22	76005	44	6
LM12711	60038	7	25
LM12749	60038	7	26
LM48548L	60038	14	12
LM67010	60038	14	11
L68111	60038	7	37
L68140	60038	7	38
MPS404A	81223	45	16
MRC3-5-13-1PCB	82807	38	15
MR1200FL	81223	46	25
MR1231SL	81223	46	29
MR1241SL	81223	46	27
MS15001-3	96906	24	50
MS15003-6	96906	24	56
MS16535-196	96906	45	31
MS16562-250	96906	25	13
MS16562-48	96906	11	16
	96906	24	23
	96906	35	31
MS16562-65	96906	7	20
MS16633-31	96906	18	14
MS16997-60	96906	23	37
	96906	23	69
MS16997-61	96906	34	20
MS16997-78	96906	11	17
MS18064-14	96906	35	34
MS18067-37	96906	35	38
MS20066-323	96906	8	8
MS20392-2C227	96906	27	6
MS20913-3S	96906	16	12
MS21044HS	96906	9	8
MS24665-130	96906	27	5
MS24665-132	96906	40	4
	96906	41	23
	96906	42	23
MS24665-283	96906	9	28
	96906	18	68
MS24665-287	96906	7	5
MS24665-355	96906	6	5
	96906	7	18
MS24665-357	96906	15	11
MS24665-360	96906	14	8
MS24665-423	96906	31	16
MS24665-439	96906	24	44
MS24665-498	96906	5	31

EFERENCE NUMBER	MFR CODE	FIG NO	ITEM NO
1S27183-10	96906	9	19
	96906	20	5
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	96906	41	11
	96906	42	11
	96906	47	2
MS27183-11	96906	18	8
	96906	35	43
MS27183-12	96906	1	26
	96906	4	2
	96906	6	25
	96906	9	14
	96906	22	18
MS27183-13	96906	9	26
	96906	10	13
	96906	18	56
MS27183-14	96906	2	27
	96906	9	34
	96906	10	9
	96906	18	69
	96906	32	12
	96906	35	44
	96906	46	18
MS27183-18	96906	9	11
	96906	22	7
MS27183-19	96906	18	40
MS27183-22	96906	18	44
MS27183-23	96906	24	46
MS27183-27	96906	14	10
MS27183-41	96906	39	41
	96906	44	14
MS27183-42	96906	3	21
	96906	33	17
	96906	34	26
	96906	37	5
	96906	37	25
	96906	39	24

REFERENCE NUMBER	MFR CODE	FIG NO	ITEM NO
MS27183-42	96906	41	27
	96906	42	27
MS27183-5	96906	37	32
	96906	43	50
MS27183-6	96906	35	14
MS27183-7	96906	47	8
MS27183-8	96906	21	30
	96906	39	14
	96906	40	7
MS35190-236	96906	38	14
MS35190-251	96906	44	9
MS35190-285	96906	39	16
	96906	46	13
MS35190-288	96906	1	9
MS35190-289	96906	18	5
	96906	47	12
MS35190-291	96906	4	26
	96906	35	3
MS35190-293	96906	20	4
MS35190-305	96906	4	1
	96906	46	11
MS35190-306	96906	35	1
MS35190-307	96906	24	16
MS35190-308	96906	1	28
	96906	16	31
	96906	37	8
MS35190-319	96906	18	54
MS35190-320	96906	39	50
MS35190-350	96906	18	36
	96906	18	59
MS35191-272	96906	40	15
	96906	41	17
	96906	42	17
MS35206-230	96906	38	18
	96906	39	7
	96906	43	48
MS35206-231	96906	37	3
	96906	37	30
	96906	39	2
MS35206-243	96906	39	10

REFERENCE NUMBER	MFR CODE	FIG NO	ITEM NO
MS35206-245	96906	47	6
MS35206-247	96906	46	26
MS35206-294	96906	18	10
	96906	18	27
MS35206-296	96906	9	4
MS35207-261	96906	18	34
	96906	37	17
	96906	44	2
MS35207-265	96906	39	12
MS35207-267	96906	37	41
MS35207-268	96906	40	26
MS35207-269	96906	41	26
	96906	42	26
MS35265-26	96906	37	6
MS35265-30	96906	40	21
MS35265-61	96906	33	13
	96906	33	15
	96906	34	25
MS35265-64	96906	34	31
MS35307-366	96906	2	10
MS35333-37	96906	37	4
	96906	37	31
	96906	38	6
	96906	39	3
	96906	43	49
MS35333-39	96906	1	22
	96906	37	23
	96906	38	9
	96906	39	13
MS35333-40	96906	39	39
	96906	42	8
	96906	47	3
MS35333-41	96906	39	43
MS35333-42	96906	13	9
	96906	37	15
MS35335-30	96906	37	35
MS35335-32	96906	40	31
MS35335-33	96906	9	12
	96906	18	22
	96906	33	9

REFERENCE NUMBER	MFR CODE	FIG NO	ITEM NO
MS35335-33	96906	41	32
	96906	42	32
MS35335-34	96906	9	15
	96906	10	12
	96906	18	17
	96906	44	11
MS35335-37	96906	18	37
MS35335-40	96906	10	21
MS35336-15	96906	44	8
MS35336-21	96906	40	14
	96906	41	16
	96906	42	16
MS35336-27	96906	1	10
	96906	39	15
	96906	46	14
	96906	47	13
MS35336-33	96906	35	2
	96906	46	8
MS35338-38	96906	47	7
MS35338-41	96906	1	17
	96906	18	49
	96906	35	13
	96906	35	29
	96906	40	29
	96906	48	2
MS35338-42	96906	6	45
	96906	32	16
	96906	39	9
	96906	46	19
MS35338-43	96906	18	35
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	96906	36	32
	96906	44	3
MS35338-44	96906	1	2
	96906	4	25
	96906	5	15
	96906	9	20
	96906	14	6

REFERENCE NUMBER	MFR CODE	FIG NO	ITEM NO
MS35338-44	96906	18	3
	96906	18	63
	96906	18	79
	96906	30	30
	96906	34	19
	96906	35	4
	96906	40	30
	96906	46	22
	96906	48	9
MS35338-45	96906	1	25
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	96906	4	3
	96906	5	3
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	96906	6	24
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	96906	10	18
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	96906	20	8
	96906	24	14
	96906	24	39
	96906	33	24
	96906	34	2
	96906	37	9
	96906	39	25
	96906	46	33
MS35338-46	96906	5	18
	96906	6	18
	96906	11	15
	96906	13	5
	96906	18	57
	96906	21	16
	96906	21	29
	96906	22	25
	96906	24	48
	96906	24	58
	96906	24	62
	96906	32	11
	96906	33	32
	96906	35	20

REFERENCE NUMBER	MFR CODE	FIG NO	ITEM NO
MS35338-46	96906	39	51
	96906	46	17
MS35338-47	96906	6	16
MS35338-48	96906	10	8
	96906	16	32
	96906	18	31
	96906	19	5
	96906	29	2
	96906	31	5
MS35338-50	96906	24	9
	96906	28	2
	96906	28	9
MS35338-51	96906	7	32
	96906	18	45
	96906	19	3
MS35338-52	96906	7	15
	96906	16	16
MS35338-53	96906	35	9
MS35393	96906	13	1
MS35393-62	96906	14	1
MS35648-2	96906	7	21
MS35649-202	96906	22	13
MS35649-2252	96906	47	4
MS35649-262	96906	1	18
	96906	18	50
	96906	35	12
	96906	37	34
	96906	38	7
	96906	39	11
	96906	43	51
	96906	48	3
MS35649-282	96906	32	15
	96906	39	42
	96906	46	20
MS35649-284	96906	44	5
MS35650-302	96906	35	30
	96906	37	27
	96906	38	10
	96906	44	4
MS35671-62	96906	6	7

FERENCE NUMBER	MFR CODE	FIG NO	ITEM NO
35690-37	96906	6	17
35691-1	96906	7	42
	96906	35	21
	96906	35	37
	96906	39	38
35691-13	96906	9	23
	96906	22	11
35691-17	96906	2	26
35691-29	96906	10	2
35691-33	96906	9	31
	96906	16	34
35691-57	96906	7	33
35691-61	96906	7	8
35691-69	96906	16	17
35691-9	96906	46	34
35692-53	96906	6	4
35756-12	96906	33	34
35810-34	96906	9	27
	96906	18	70
35812-4	96906	9	22
35842-11	96906	30	1
35842-12	96906	30	14
39086-401	96906	13	13
49005-58	96906	30	6
49005-6	96906	30	21
49006-8	96906	5	38
51957-124	96906	48	1
51957-30	96906	1	12
	96906	18	47
51957-36	96906	35	25
51957-41	96906	6	44
51957-63	96906	1	16
51957-77	96906	23	28
	96906	23	59
MS51957-79	30612	9	7
	96906	18	23
MS51958-61	96906	35	22
MS51959-105	96906	35	15
MS51959-111	96906	32	1
MS51959-65	96906	22	15

REFERENCE NUMBER	MFR CODE	FIG NO	ITEM NO
MS51959-97	96906	34	13
MS51959-99	96906	33	39
MS51967-13	96906	10	7
MS51967-14	96906	16	33
	96906	19	6
	96906	29	1
	96906	31	6
MS51967-2	96906	4	24
	96906	9	13
	96906	18	2
	96906	18	64
	96906	18	80
	96906	30	31
	96906	35	5
	96906	46	7
	96906	48	8
MS51967-23	96906	18	46
MS51967-25	96906	5	35
MS51967-5	96906	1	24
	96906	4	4
	96906	6	23
	96906	9	16
	96906	10	19
	96906	23	77
	96906	24	40
	96906	35	23
	96906	37	11
MS51967-8	96906	10	20
	96906	18	58
	96906	22	26
	96906	24	57
	96906	32	10
	96906	37	16
	96906	39	52
	96906	46	16
MS51968-14	96906	7	16
MS51968-15	96906	16	25
MS51968-20	96906	24	33
MS51968-5	96906	16	4
	96906	20	7

REFERENCE NUMBER	MFR CODE	FIG NO	ITEM NO
MS51968-8	96906	23	75
MS9048-135	96906	1	8
MS90725-1	96906	41	2
	96906	42	2
MS90725-109	96906	29	3
MS90725-110	96906	2	21
	96906	18	30
MS90725-113	96906	19	4
	96906	24	28
	96906	29	4
MS90725-114	96906	28	11
MS90725-115	96906	31	3
MS90725-160	96906	28	3
MS90725-162	96906	24	64
MS90725-163	96906	28	10
MS90725-182	96906	19	2
MS90725-188	96906	7	34
MS90725-192	96906	18	42
MS90725-29	96906	44	12
MS90725-3	96906	5	14
	96906	9	21
	96906	14	5
	96906	35	10
	96906	41	12
	96906	42	12
MS90725-31	96906	6	29
	96906	39	26
MS90725-32	96906	5	12
	96906	24	13
	96906	34	23
MS90725-34	96906	24	37
	96906	46	32
MS90725-38	96906	10	14
MS90725-42	96906	6	41
MS90725-49	96906	21	26
MS90725-5	96906	41	33
	96906	42	33
MS90725-50	96906	21	27
MS90725-58	96906	13	8
MS90725-59	96906	11	14

REFERENCE NUMBER	MFR CODE	FIG NO	ITEM NO
MS90725-59	96906	24	63
MS90725-6	96906	7	41
	96906	18	6
	96906	18	73
	96906	33	8
	96906	46	23
	96906	48	10
MS90725-60	96906	5	17
	96906	21	15
	96906	33	31
	96906	46	28
MS90725-61	96906	35	19
	96906	46	24
MS90725-62	96906	6	19
	96906	32	13
MS90725-64	96906	22	24
	96906	24	60
MS90725-66	96906	13	6
MS90725-71	96906	10	22
MS90725-8	96906	1	1
	96906	18	81
	96906	30	29
MS90726-114	96906	16	35
	96906	24	12
MS90726-115	96906	24	11
MS90726-119	96906	7	12
MS90726-160	96906	24	10
MS90726-32	96906	33	20
MS90726-33	96906	20	9
MS90726-34	96906	33	23
MS90726-36	96906	9	25
MS90726-40	96906	16	1
MS90726-60	96906	21	28
MS90726-64	96906	34	33
M1LR-39008-3	81349	45	18
M916997-80	96906	34	1
NAN181	80900	7	24
NSS		7	7
NO8	60038	33	25
N5000-87	73740	16	22

REFERENCE NUMBER	MFR CODE	FIG NO	ITEM NO
PD278A10	07988	24	54
PNPT03	81223	45	13
PW10-500	23237	45	14
RC32GF242J	23237	45	28
RC42GF232J	23237	45	11
R32-20	90005	32	4
R544-10	70026	24	36
R944-10	70026	24	34
SC10	71400	37	38
SC15	71400	39	19
SC5	71400	37	39
	71400	39	18
SP1358	81223	38	13
SP2155	81223	38	17
SR1734	81223	45	22
SS2406	81223	45	24
SS48172	90763	35	41
ST38F	04065	2	15
S10534	72210	7	10
S1233	72210	7	2
	72210	15	2
	72210	15	10
S16081	72210	7	9
S279	19691	18	43
S433	72625	24	31
	72625	28	12
S5306	72210	7	4
S5339	72210	15	7
S5340	72210	7	3
	72210	15	3
	72210	15	9
S5896	72210	2	1
	72210	15	4
	72210	15	8
TC206	75272	24	38
TE1305	56289	45	8
T77	60038	7	17
WA31A	79410	6	36
Z99507H	43334	24	21
0T51	92392	42	35

REFERENCE NUMBER	MFR CODE	FIG NO	ITEM NO
00-479-253-035	92392	36	13
00-631-059-104	92392	36	18
00-631-123-210	92392	36	33
00-639-071-701	92392	36	19
00-651-021-035	92392	36	29
00-651-027-087	92392	36	31
00-651-027-139	92392	36	16
00-655-017-026	92392	36	17
00-671-177-313	92392	36	4
00-735-337MK128	92392	46	31
029031	73740	17	2
029037	73740	17	3
09523941	73740	16	5
1016904	18876	24	7
10250TA55	01364	42	36
11-504000	04426	22	17
110	24455	3	4
1114-05	78189	11	2
1150	79500	3	18
12M59-10H	82807	39	40
1202	73740	16	26
131000	70270	5	37
14-04-032-001	79410	6	35
14-04-033-001	79410	6	38
14-04-056-001	79410	6	42
14-101-714-020	92392	36	14
14-102-618-011	92392	41	4
	92392	42	4
14-103-701-001	92392	36	39
14-103-704-001	92392	36	28
14-103-705-011	92392	36	5
14-107-608-001	92392	36	22
14-110-748-028	92392	36	21
14-125-685-005	92392	36	9
14-135-915-002	92392	36	1
14-137-226-002	92392	36	38
14-137-352-001	92392	36	15
14-137-385-801	92392	36	12
14-137-569-001	92392	36	24
14-137-585-501	92392	36	23

ERENCE NUMBER	MFR CODE	FIG NO	ITEM NO
-139-503-805	92392	36	7
-143-960-001	92392	36	36
-144-224-002	92392	36	35
-144-304-501	92392	36	6
-146-353-501	92392	36	3
-154-879-011	92392	36	25
-171-287	92392	40	28
-172-212	92392	40	24
-175-226-001	92392	36	37
-175-992-001	92392	36	26
-175-993-001	92392	36	27
-177-651	92392	41	20
	92392	42	20
-177-807-501	92392	42	29
-177-808	92392	41	10
	92392	42	10
-183-243-501	92392	42	28
-205-351-001	92392	36	30
-209-255-003	92392	36	11
-225-517-002	92392	36	2
-230-091-001	92392	36	20
-318-773-501	92392		
49921	24617	17	7
5SF4X8	80648	7	30
511-10	71279	39	5
511-11	71379	21	5
511-28	71379	21	6
511-3	71379	21	10
511-85A	71379	21	11
5147-112	71379	21	8
15173	09704	20	
15173B	09704	20	2
15173C	09704	20	1
15173F	09704	20	3
15505-4	71379	21	1
15511-10	71379	21	4
15511-16	71379	21	12
15511-43	71379	49	
15511-9	71379	21	7
15600-13	71379	21	19

REFERENCE NUMBER	MFR CODE	FIG NO	ITEM NO
16006-7	71379	21	9
16119-544	71379	21	25
16368	95879	15	12
17U8105X	24152	45	20
17U8305K	24152	45	10
17831	60038	6	11
17886	60038	6	10
18-158-543-001	92392	36	34
18-386-833-401	92392	1	20
	92392	36	
•18-387-159-606	92392	36	8
•18-387-685-607	92392	36	10
1911B	70270	7	6
2N3905	81223	45	23
200W16M1	80201	5	39
20220-13	71379	21	20
20220-41	71379	21	17
	71379	21	18
202702-4-4	00624	30	25
205SZZ	76052	34	10
205000	75667	7	23
205400	75677	7	35
206SZZ	76062	34	4
21FK1024	56878	22	23
22E040	72962	22	9
24DC03	73740	16	7
24DC04	73740	16	7
24DC05	73740	16	7
24DC24	73740	16	6
24DF03	73740	16	24
24DF04	73740	16	23
24DF17	73740	16	10
2408-12-16	22031	30	3
24306-250	71379	21	22
24309-250	71379	21	13
24380-10	71379	21	24
24380-856	71379	21	14
24380-909	71379		
24386-302	71379	21	2
24386-306	71379	21	3

REFERENCE NUMBER	MFR CODE	FIG NO	ITEM NO
24386LAA	71379	21	
24389-250	71379	21	21
2521	59730	2	17
	59730	3	23
253AA008	73740	16	
253CM000	73740	16	13
253CM003	73740	16	14
253MA003	73740	16	19
2705-2	83858	3	19
277	16764	10	32
2872	82465	31	2
29NU0110	22599	20	6
2917	71400	37	37
2965	71400	39	17
3MNGTCDB	91929	40	20
30D06G015CB2	56289	45	9
30H62-2500	92863	29	6
3020	73740	16	20
3032	92850	10	5
306SZZ	76062	33	18
31208	73740	16	27
32D102F250BF6B	56289	46	4
32D552G050BF6B	56289	46	3
321235	02260	3	25
33050	73740	16	30
3316S	92850	18	12
33221	73740	16	29
33741	73740	16	28
3389	93784	23	19
3514	93784	23	3
	93784	23	43
35335-41	96906	16	3
3562	73740	16	15
3705726	24617	6	27
3707303	11862	6	9
4DF03	73740	16	21
4WJJTXS	30536	30	22
400D113	93608	2	23
400056	73740	16	11
400078	73740	16	8

REFERENCE NUMBER	MFR CODE	FIG NO	ITEM NO
401081	73740	17	4
402294A1-800	73740	16	18
4050	01943	32	9
4131659	30612	23	1
	30612	23	41
4194	09704	20	11
4253253	30612	5	22
4253254	30612	5	21
4253297	30612	5	20
4253299	30612	5	24
4253818	30612	23	24
	30612	23	38
	30612	23	70
4254317	30612	13	12
4254318	30612	13	3
	30612	14	2
4254699	30612	13	7
4254700	30612	13	11
4254704	30612	14	4
4254773	30612	5	23
4254978	30612	6	22
4255195	30612	2	31
4255221	30612	6	13
4255312	30612	33	28
4255431	30612	2	30
4255583	30612	31	1
4255878	30612	22	22
4255879	30612	22	8
4331040	30612	5	25
4335601	30612	24	47
434885	73740	17	8
4377201	30612	6	26
4388	93784	23	2
	93784	23	42
444788	24617	5	36
4460615	30612	2	16
4499-6	93784	30	26
45E5493C1K	01364	45	21
45E5493C2K	01364	45	25
450CS3	88310	34	
450029	73740	17	5
45006	73740	17	1
4589	24455	2	7
4601-12 NWO	22031	30	5
468	73134	35	18
4706891	09367	13	10
4707234	30612	5	19
4707255	30612	11	20
4707399	30612	24	45
4707440	30612	6	3
4707711	30612	6	34
4710053	30612	5	6
4710934	30612	10	23
4712965	30612	24	42
4715712	30612	24	2
4716827	30612	5	2
4717072	30612	11	7
4718022	30612	14	9
4718482	30612	24	49
4727275	30612	24	27
4734284	30612	18	33
	30612	44	1
4735369	30612	24	32
4735665	30612	32	
4735718	30612	18	11
4736866	30612	6	31
4737615	30612	6	30
4737617	30612	6	32
4742113	30612	24	51
4744948	30612	5	8
4747307	30612	5	26
4747310	30612	5	27
4747611	30612	31	18
4747622	30612	14	7
4747623	30612	5	13
4747632	30612	31	23
4747716	30612	5	28
4749689	30612	13	2
4750075	30612	5	29
475104	73740	16	2
4752618	30612	13	4
4752722	30612	31	20
4753030	30612	31	22
4753035	30612	31	15
4753044	30612	31	19
4753045	30612	31	13
4753046	30612	31	12
	30612	31	14
4754948	30612	24	24
4756788	30612	24	19
4757678	30612	42	34
4760861	30612	35	35
4768091	30612	35	6
	30612	44	10
4769572	30612	31	10
4769587	30612	31	9
4769885	30612	11	19
4769886	30612	11	21
4769887	30612	11	5
4774640	30612	18	13
4775868	30612	2	28
4775869	30612	2	24
4776258	30612	5	9
4778751	30612	9	29
4778770	30612	6	1
4778771	30612	6	2
4778774	30612	6	14
4778775	30612	6	14
4778776	30612	6	14
4778777	30612	6	14
4778780	30612	6	6
4778818	30612	14	3
4781578	30612	13	
4783362	30612	27	7
4784076	30612	9	33
4784114	30612	4	5
4784167	30612	10	24
4784177	30612	10	29
4785425	30612	30	4
4788326	30612	9	3

REFERENCE NUMBER	MFR CODE	FIG NO	ITEM NO
4788327	30612	10	10
	30612	20	14
4788524	30612	14	
4790212	30612	39	20
	30612	46	15
	30612	47	11
4791544	30612	37	10
4791984	30612	9	30
4794978	30612	12	3
4794979	30612	10	1
4794999	30612	9	9
4795004	30612	10	15
4795013	30612	22	3
4795014	30612	22	2
4795016	30612	22	5
4795056	30612	10	3
4795086	30612	18	84
4798893	30612	10	
4799824	30612	35	40
4799828	30612	35	24
4799957	30612	18	24
4801535	30612	18	16
4801855	30612	6	46
4802743	30612	18	51
4802823	30612	22	21
4802965	30612	22	12
4803123	30612	3	
4803128	30612	3	20
4803181	30612	3	22
4804029	30612	31	24
4804038	30612	28	1
4804451	30612	35	8
4804453	30612	35	11
4804456	30612	35	39
4804776	30612	27	1
4804779	30612	27	4
4805015	30612	10	4
4805122	30612	45	
4805457	30612	35	33
4805700	30612	6	43
4805700	30612	32	14
4805780	30612	35	27
4805781	30612	35	7
4806104	30612	35	36
4806537	30612	32	8
4806916	30612	10	34
4806985	30612	44	7
4807184	30612	46	2
4807278	30612	10	33
4807279	30612	10	35
4807349	30612	11	4
4807538	30612	48	6
4807680	30612	27	2
4808088	30612	2	29
4808337	30612	30	20
4808392	30612	7	29
4808402	30612	11	1
4808653	30612	8	
4809219	30612	6	12
4809227	30612	30	2
4809304	30612	30	12
4809436	30612	9	1
4809742	30612	18	15
4809760	30612	37	
4809775	30612	48	7
4810077	30612	47	
4810157	30612	9	18
4810316	30612	30	27
4810343	30612	9	17
4810557	30612	10	30
4810806	30612	9	5
4810808	30612	9	24
4810809	30612	9	6
4811119	30612	2	25
4811148	30612	46	9
4811394	30612	18	52
4811395	30612	18	48
4811495	30612	30	18
4811496	30612	30	7
4811718	30612	30	9
4811759	30612	18	67
4811767	30612	18	20
4811773	30612	18	76
4811776	30612	18	75
4811778	30612	18	82
4811780	30612	18	72
4811783	30612	18	74
4811785	30612	18	77
4811788	30612	18	85
4812324	30612	39	49
4812331	30612	43	44
4812373	30612	38	16
4812377	30612	38	4
4812542	30612	39	45
4812588	30612	47	5
4812591	30612	47	10
4812592	30612	47	9
4812593	30612	47	1
4812712	30612	39	6
4812920	30612	24	6
	30612	28	4
4812929	30612	24	5
	30612	28	5
4812930	30612	24	4
	30612	28	6
4812965	30612	24	30
	30612	28	13
	30612	28	14
4812974	30612	24	3
4812991	30612	30	10
4814835	30612	22	4
4816035	30612	2	14
4816184	30612	5	33
4816749	30612	25	5
	30612	26	5
4816948	30612	25	10
	30612	26	2
4817266	30612	24	22
4817267	30612	24	17
4817457	30612	25	6

REFERENCE NUMBER	MFR CODE	FIG NO	ITEM NO
4817457	30612	26	8
4817458	30612	25	9
	30612	26	11
4817460	30612	25	2
	30612	26	4
4817461	30612	25	4
	30612	26	7
4817506	30612	25	3
	30612	26	6
4817727	30612	28	8
4818233	30612	24	25
4818297	30612	24	26
4818828	30612	30	19
4819236	30612	22	1
4819428	30612	30	13
4819814	30612	24	61
4819938	30612	24	20
4821559	30612	24	53
4821577	30612	24	35
4821578	30612	24	59
4821745	30612	18	19
4822169	30612	39	23
4822213	30612	17	6
4822479	30612	1	6
4823101	30612	7	
	30612	7	43
4823102	30612	7	36
4823103	30612	7	19
4823104	30612	7	44
4823108	30612	7	40
4823113	30612	7	28
4823120	30612	7	13
4823121	30612	7	31
4823457	30612	18	29
4823981	30612	5	16
4824178	30612	25	
4824179	30612	26	
4824262	30612	6	33
4824320	30612	26	3
4824322	30612	26	1
4824324	30612	25	12
4824329	30612	25	11
4824331	30612	25	1
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4824663	30612	10	6
4824665	30612	10	
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4825234	30612	43	30
4825235	30612	43	21
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482537	30612	43	9
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4825462	30612	43	31
4825860	30612	18	4
4825861	30612	18	28
4825962	30612	18	9
4827271	30612	46	21
4827273	30612	46	12
4827395	30612	46	
4827461	30612	46	1
4827488	30612	18	1
4827497	30612	24	1
4827499	30612	24	29
4827508	30612	24	15
4827510	30612	28	7
4827538	30612	16	36
4827548	30612	18	25
4827551	30612	18	38
4827552	30612	18	55
4827555	30612	18	32
4827584	30612	19	1
4827598	30612	35	
4827599	30612	35	17
4827614	30612	39	
4827615	30612	39	1
4827768	30612	1	21
4827771	30612	29	5
4827801	30612	35	32
4827807	30612	44	13
4827811	30612	31	4
4827813	30612	30	16
	30612	31	7
4827814	30612	18	66
4827902	30612	32	2
4827966	30612	1	4
4827968	30612	1	3
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44	30612	22	20
45	30612	22	16
48	30612	30	15
52	30612	7	14
64	30612	43	
88	30612	24	8
78	30612	18	26
01	30612	43	28
81	30612	18	41
15	30612	1	19
34-0	78422	3	5
42-3	78422	3	11
45-3	78422	2	3
35	30612	43	19
82	30612	41	18
	30612	42	18
83	30612	41	3
	30612	42	3
01	30612	8	4
80	30612	49	
05	30612	6	40
98	30612	24	41
40	30612	12	7
01	30612	49	
78	30612	49	
56	30612	23	21
398	30612	40	22
46	30612	4	14
	30612	4	16
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4994393	30612	40	
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	30612	41	14
	30612	42	14
4994399	30612	40	12
4994400	30612	40	5
4994401	30612	40	9
4994402	30612	41	22
	30612	42	22
4994403	30612	40	23
4994404	30612	40	3
4994405	30612	40	25
	30612	41	25
	30612	42	25
4994406	30612	40	8
4994407	30612	40	17
4994408	30612	40	19
4994409	30612	40	2
4994413	30612	46	6
4994427	30612	40	32
4994435	30612	40	6
4994839	30612	41	5
4994943	30612	43	11
4994945	30612	43	6
4994949	30612	43	2
4994950	30612	43	3
4994965	30612	43	1
4995323	30612	23	65
4996820	30612	41	15
	30612	42	15
4996824	30612	46	30
4996828	30612	37	7
4996834	30612	37	19
4996835	30612	37	29
4996838	30612	41	28
4996839	30612	39	32
	30612	41	

REFERENCE NUMBER	MFR CODE	FIG NO	ITEM NO
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4996930	30612	41	30
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4996950	30612	41	13
	30612	42	13
4996951	30612	41	6
	30612	42	6
4996954	30612	41	21
	30612	42	21
4996955	30612	41	9
	30612	42	9
4996958	30612	41	29
4996959	30612	41	1
	30612	42	1
4997420	30612	43	14
4997429	30612	43	12
4997430	30612	43	45
4997438	30612	43	36
4997444	30612	43	24
4997452	30612	43	26
4997866	30612	34	34
4997883	30612	37	40
4997886	30612	37	18
4997899	30612	43	20
4997905	30612	43	5
4997908	30612	43	46
4997909	30612	43	16
4997910	30612	43	17
4997915	30612	43	22
4997917	30612	43	18
4997919	30612	43	7
4997929	30612	38	1
4997939	30612	39	47
4997980	30612	43	37
4997981	30612	43	40
4997982	30612	43	47
4998067	30612	38	11
4998095	30612	39	29
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4998172	30612	38	12

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100-940-600	88310	33	7
104-784-600	88310	34	6
104-780-600	88310	34	7
105-98-600	88310	33	30
105-981-600	88310	33	37
105-988-600	88310	33	36
804-943-000	88310	33	33
804-982-600	88310	34	5
804-600	88310	33	31
804-928-000	88310	33	28
804-736-000	88310	33	14
805-821-600	88310	34	11
806-685-000	88310	34	16
806-987-000	88310	34	3
806-970	88310	33	4
806-820	88310	34	21
808-964-000	88310	34	12
808-981-000	88310	33	1
808-824-600	88310	33	38
85	78762	33	27
8030-1	78420	2	10
8034-00	78420	2	
8036-1	78420	2	4
8040-0	78420	2	6
8049-0	78420	3	17
8057-1	78420	2	13
8061-1	78420	2	4
8066-1	78420	3	14
8067-0	78420	3	18
8068-0	78420	3	16
8069-0	78420	2	11
80X	16704	20	19
8070-0	78420	3	14
8070-1	78420	3	17
8071-1	78420	3	8
8084-1	78420	3	1
8090-0	78420	3	7
8093-0	78420	3	1
8093-1	78420	3	5
8093-1	78420	3	3

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564134-39	82897	46	10
5648	98784	28	71
571	26490	1	11
58-0383-5	78420	2	8
58108	80495	4	6
58163	80495	4	15
5833	80495	4	7
	80495	4	23
5834	80495	4	9
	80495	4	21
5837	80495	4	10
	80495	4	20
5839	80495	4	11
	80495	4	19
5840	80495	4	8
5842	80495	4	22
5843	80495	4	13
	80495	4	17
5844	80495	4	12
	80495	4	18
601	77915	17	6
61-0305-6	78420	3	9
6732-15	09734	20	10
75341	31364	1	14
7618K2	15605	1	29
7256+	88310	6	20
80-6	09734	20	12
81-5100-0112-302	78419	1	15
900300	30612	2	20
	30612	13	11
90100441	99005	32	6
9010+3	4990+	2	22
9033784L	99005	32	7
903691	30611	6	8
903697	30611	41	18
903899	30611	6	10
903+04	37611	8	30
903+95	30611	14	41
	30611	13	43

REFERENCE NUMBER	MFR CODE	FIG NO	ITEM NO
917007	30611	24	43
917023	30611	6	37
917214	30611	14	13
917361	30611	7	11
917365	99908	40	37
917663	30611	23	10
918567	30611	8	1
920495	30612	18	7
920754	30612	0	0
921225	30611	23	13
	30611	23	22
	30612	23	58
	30612	24	58
921226	09367	23	20
921319	30611	41	31
	30611	40	31
921349	30611	23	8
	30612	23	24
	30612	23	44
921379	30611	18	18
922262	30611	11	3
922419	30612	6	19
922519	30611	5	34
922571	30611	30	17
922725	30612	40	18
	30611	41	14
	30611	40	19
923376	30611	23	31
	30611	23	40
923396	30611	18	35
923499	30611	41	7
	30611	40	7
923669	30611	23	14
	30611	23	44
923682	30611	23	17
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923683	30611	37	34
923684	30611	37	37
923685	30611	8.	7
923814	30611	8.	21

REFERENCE NUMBER	FIG NO	ITEM NO
4828310	34	28
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4828481	40	
4828493	40	16
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4828543	42	14
4828544	40	12
4828545	40	5
4828548	40	9
4828662	41	22
4829064	42	22
4829288	40	23
4829378	40	3
4829801	40	25
4830581	41	25
4833115	42	25
49-0634-0	40	8
49-0642-3	40	17
49-0645-3	40	19
4900335	40	2
4905182	46	6
	40	32
4905183	40	6
	41	5
4906301	43	11
4906380	43	6
4906405	43	2
4927498	43	3
4984140	43	1
4984201	23	65
4991278	41	15
4993156	42	15
4994 398	46	30
4994046	37	7
	37	19
4994056	37	29
4994057	41	28
4994060	39	32
4994061	41	

REFERENCE NUMBER	MFR CODE	FIG NO	ITEM NO
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	30612	42	30
4996950	30612	41	13
	30612	42	13
4996951	30612	41	6
	30612	42	6
4996954	30612	41	21
	30612	42	21
4996955	30612	41	9
	30612	42	9
4996958	30612	41	29
4996959	30612	41	1
	30612	42	1
4997420	30612	43	14
4997429	30612	43	12
4997430	30612	43	45
4997438	30612	43	36
4997444	30612	43	24
4997452	30612	43	26
4997866	30612	34	34
4997883	30612	37	40
4997886	30612	37	18
4997899	30612	43	20
4997905	30612	43	5
4997908	30612	43	46
4997909	30612	43	16
4997910	30612	43	17
4997915	30612	43	22
4997917	30612	43	18
4997919	30612	43	7
4997929	30612	38	1
4997939	30612	39	47
4997980	30612	43	37
4997981	30612	43	40
4997982	30612	43	47
4998067	30612	38	11
4998095	30612	39	29
	30612	40	
4998172	30612	38	12

G NO	ITEM NO
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9	44
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5	7
6	9
8	15
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5	32
7	27
7	39
1	15

By Order of the Secretary of the Army:

W. C. WESTMORELAND,
General, United States Army,
Chief of Staff.

Official:

VERNE L. BOWERS,
Major General, United States Army.
The Adjutant General.

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